USDA United States Department of Agriculture

Natural Resources Conservation Service

Montana Water Supply Outlook Report January 1, 2009

Picture: Black Bear SNOTEL Site - Winter of 1997

Water Supply Outlook Report
and
Federal - State - Private
Cooperative Snow Surveys

For more water supply and resource management information, contact:

Water Supply Specialist
Federal Building
10 East Babcock, Room 443
Bozeman, MT 59715
or
Phone 406-587-6991

How forecasts are made

Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Natural Resources Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

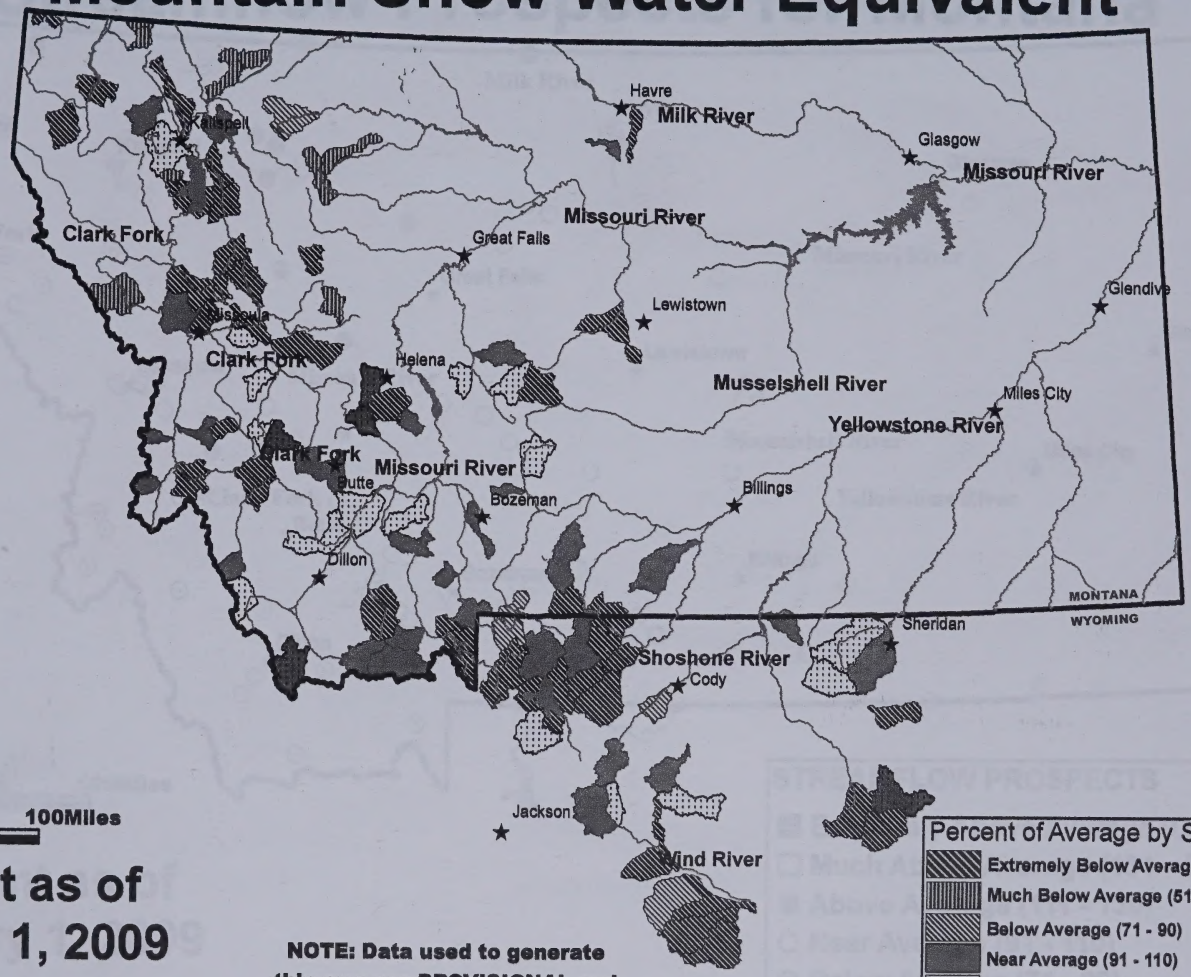
Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

UNITED STATES DEPARTMENT OF AGRICULTURE

NATURAL RESOURCES CONSERVATION SERVICE

Mountain Snow Water Equivalent



Current as of January 1, 2009

NRCS Natural Resources Conservation Service

http://www.mt.nrcs.usda.gov

NOTE: Data used to generate this map are PROVISIONAL and SUBJECT TO CHANGE.

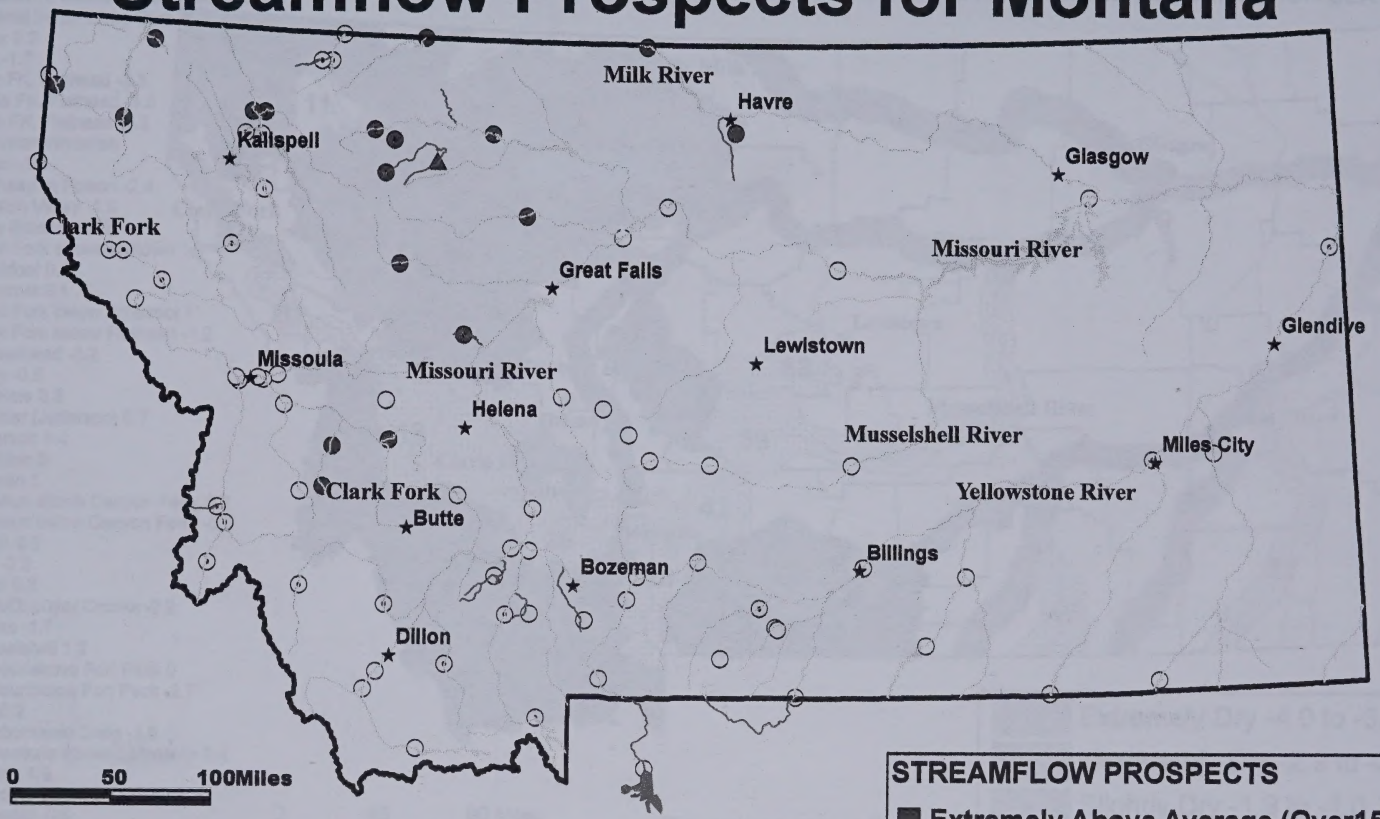
Percent of Average by Sub-Basin

- Extremely Below Average (Below 51)
- Much Below Average (51 - 70)
- Below Average (71 - 90)
- Near Average (91 - 110)
- Above Average (111 - 130)
- Much Above Average (131 - 150)
- Extremely Above Average (Over150)

UNITED STATES DEPARTMENT OF AGRICULTURE

NATURAL RESOURCES CONSERVATION SERVICE

Streamflow Prospects for Montana



Current as of January 1, 2009

NRCS Natural Resources Conservation Service

http://www.mt.nrcs.usda.gov

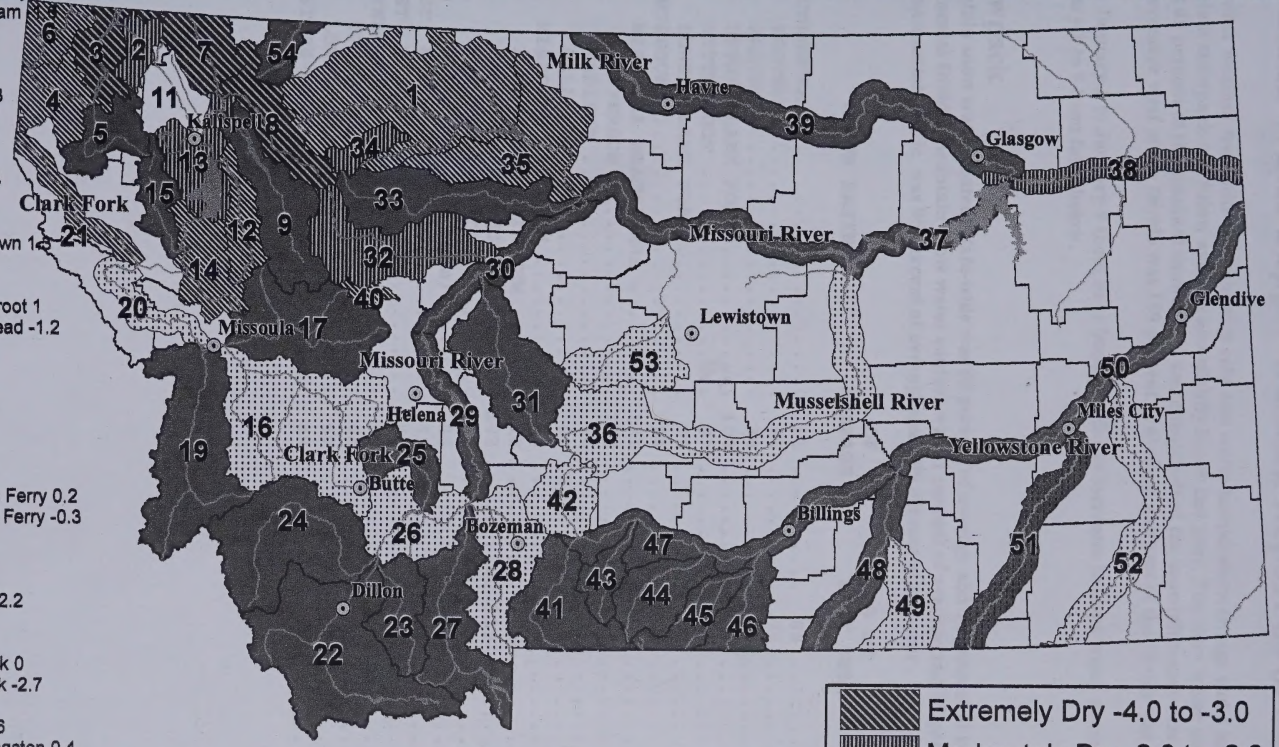
NOTE: Data used to generate this map are PROVISIONAL and SUBJECT TO CHANGE.

STREAMFLOW PROSPECTS

- ■ Extremely Above Average (Over150)
- □ Much Above Average (131 - 150)
- ● Above Average (111 - 130)
- ○ Near Average (91 - 110)
- ⊙ Below Average (71 - 90)
- ● Much Below Average (51 - 70)
- ▲ Extremely Below Average (Below 51)

Surface Water Supply Index (SWSI) Values

UNITED STATES DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE



RIVER INDEX & SWSI VALUES

1 Marias above Tiber Reservoir -1.8
2 Tobacco -2.3
3 Kootenai Ft. Steele to Libby Dam -3.4
4 Kootenai below Libby Dam
5 Fisher 0.2
6 Yaak -1.7
7 North FK. Flathead -3.3
8 Middle FK. Flathead -3.3
9 South FK. Flathead -0.2
11 Stillwater/Whitefish
12 Swan -1.2
13 Flathead at Polson -2.4
14 Mission Valley -1.9
15 Little Bitterroot 0.2
16 Clark Fork above Milltown 1
17 Blackfoot 0.1
19 Bitterroot 0.1
20 Clark Fork below Bitterroot 1
21 Clark Fork below Flathead -1.2
22 Beaverhead -0.2
23 Ruby -0.5
24 Big Hole 0.3
25 Boulder (Jefferson) 0.7
26 Jefferson 1.4
27 Madison 0
28 Gallatin 1
29 Missouri above Canyon Ferry 0.2
30 Missouri below Canyon Ferry -0.3
31 Smith 0.5
32 Sun -2.3
33 Teton 0.2
34 Birch/Dupuyer Creeks -2.2
35 Marias -1.7
36 Musselshell 1.2
37 Missouriabove Fort Peck 0
38 Missouribelow Fort Peck -2.7
39 Milk 0.2
40 Dearbornnear Craig -1.6
41 Yellowstone above Livingston 0.4
42 Shields 1.9
43 Boulder(Yellowstone) 0.6
44 Stillwater -0.5
45 Rock/Red Lodge Creeks 0
46 Clarks Fork -0.9
47 Yellowstone above Bighorn 0.1
48 Bighorn below Bighorn Lake 0.3
49 Little Bighorn 1
50 Yellowstone below Bighorn 0.2
51 Tongue 2.5
52 Powder 1.1
53 Upper Judith River 1.3
54 Saint Mary River 0.2

0 45 90 Miles

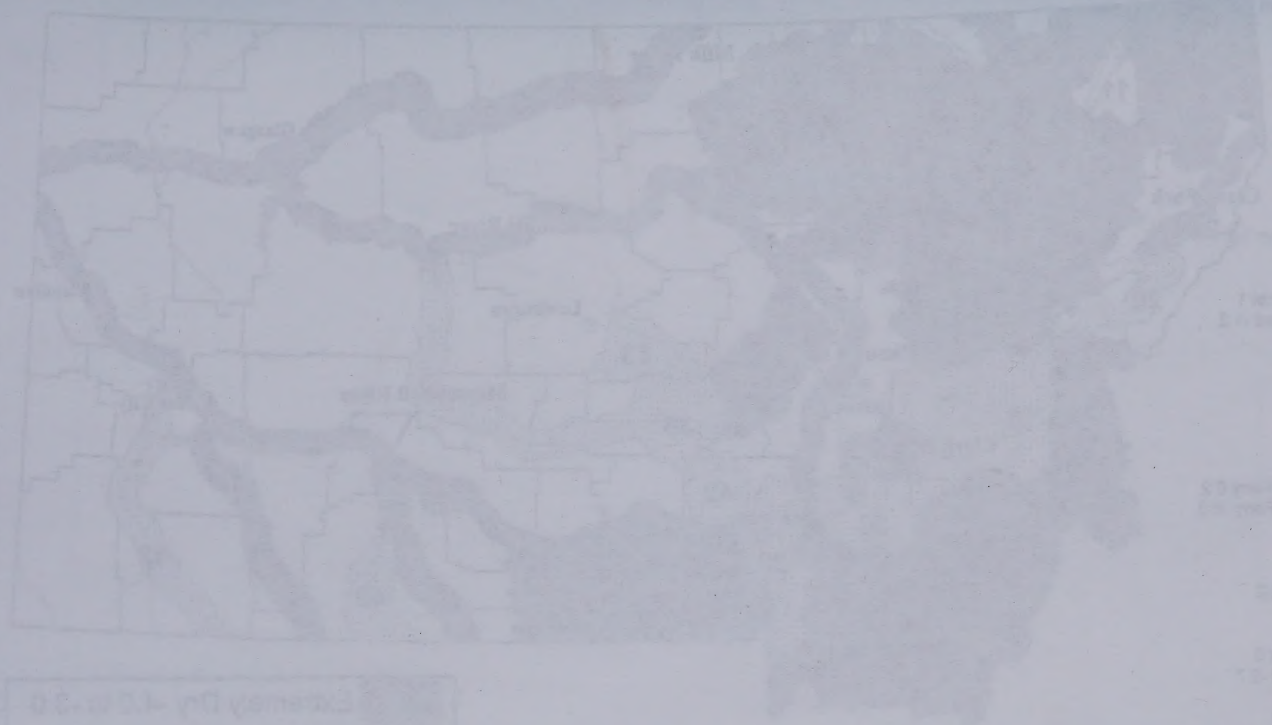
Current as of January 1, 2009

- Extremely Dry -4.0 to -3.0
- Moderately Dry -2.9 to -2.0
- Slightly Dry -1.9 to -1.0
- Near Average -0.9 to 0.9
- Sightly Wet 1.0 to 1.9
- Moderately Wet 2.0 to 2.9
- Extremely Wet 3.0 to 4.0
- SWSI Not Applicable

NOTE: Data used to generate this map are PROVISIONAL and SUBJECT TO CHANGE.

NRCS Natural Resources Conservation Service

http://www.mt.nrcs.usda.gov



Montana Water Supply Outlook Report as of January 1, 2009

December weather was quite variable with cold and warm temperature swings and a lot of strong winds. State-wide mountain snowpack was below average and slightly below last year. The snow water content on January 1 represents about 45 percent of the seasonal snowfall, so more than half of the snowfall season remains. Mountain precipitation for December west of the Divide was 109 percent of average and east of the Divide was 120 percent of average.

From January 1 to January 9 there have been significant increases in snow water content. See percent change from January 1 to 9 from table below.

Snowpack

Mountain snow water content state-wide was 88 percent of average and 96 percent of last year. West of the Continental Divide, mountain snow water content was 81 percent of average and 89 percent of last year and east of the Continental Divide, was 95 percent of average and 105 percent of last year.

RIVER BASIN	% OF AVERAGE	% OF LAST YEAR	% CHANGE FROM JANUARY 1 TO 9
COLUMBIA	81	89	+29
KOOTENAI	67	71	+30
FLATHEAD	74	88	+28
UPPER CLARK FORK	104	115	+25
BITTERROOT	87	79	+31
LOWER CLARK FORK	78	73	+33
MISSOURI	96	108	+20
MISSOURI HEADWATERS	101	105	+10
JEFFERSON	109	117	+14
MADISON	94	92	+4
GALLATIN	96	98	+9
MISSOURI MAINSTEM	93	133	+21
HEADWATERS MAINSTEM	118	172	+20
SMITH-JUDITH-MUSSELSHELL	102	138	+11
SUN-TETON-MARIAS	59	74	+29
MILK (Bearpaw Mtns)	105	600	+28
ST. MARY	58	73	+17
ST. MARY & MILK	68	102	
YELLOWSTONE	97	104	+18
UPPER YELLOWSTONE	96	98	+21
LOWER YELLOWSTONE	97	109	+15
STATE-WIDE	88	96	

Precipitation

December mountain and valley precipitation across the state was 120 percent of average and 103 percent of last year, while the water year precipitation was 103 percent of average and 100 percent of last year.

West of the Continental Divide, December mountain and valley precipitation was 114 percent of average and 94 percent of last year and the water year precipitation was 94 percent of average and 91 percent of last year. East of the Divide, December mountain and valley precipitation was 124 percent of average and 111 percent of last year and the water year precipitation was 111 percent of average and 108 percent of last year.

RIVER BASIN	DECEMBER % OF AVERAGE	WATER YEAR % OF AVERAGE
COLUMBIA	114	94
KOOTENAI	101	77
FLATHEAD	105	80
UPPER CLARK FORK	131	120
BITTERROOT	127	109
LOWER CLARK FORK	107	88
MISSOURI	121	111
JEFFERSON	120	116
MADISON	114	103
GALLATIN	122	113
MISSOURI MAINSTEM	146	133
SMITH-JUDITH-MUSSELSHELL	120	120
SUN-TETON-MARIAS	122	81
MILK	172	144
ST. MARY	84	64
YELLOWSTONE	126	108
UPPER YELLOWSTONE	123	101
LOWER YELLOWSTONE	128	114
STATE-WIDE	120	103

Reservoirs

Major reservoir storages statewide were 87 percent of average and 111 percent of last year.

Reservoir storage west of the Continental Divide was 112 percent of average and 100 percent of last year. East of the Continental Divide, reservoir storages were 77 percent of average and 117 percent of last year.

RIVER BASIN	% OF AVERAGE	% OF LAST YEAR
COLUMBIA	112	100
KOOTENAI	121	100
FLATHEAD	106	100
UPPER CLARK FORK	148	136
BITTERROOT	151	243
LOWER CLARK FORK	101	99
MISSOURI	75	118
JEFFERSON	78	114
MADISON	105	101
GALLATIN	159	102
MISSOURI MAINSTEM	73	117
SMITH-JUDITH-MUSSELSHELL	83	209
SUN-TETON-MARIAS	110	128
MILK	109	143
ST. MARY	183	239
YELLOWSTONE	110	106
UPPER YELLOWSTONE	106	98
LOWER YELLOWSTONE	110	106
STATE-WIDE	87	111

Streamflow

Across Montana, January 1 streamflows are forecast to average between 73 and 89 percent, for the period April 1 through July 31. West of the Continental Divide, January 1 streamflows were forecast to average between 76 and 89 percent. Because of significant increases in precipitation from January 1 to January 9 and delayed streamflow forecast coordination, streamflows west of the Continental Divide now average between 84 and 97 percent. East of the Continental Divide, January 1 streamflows are forecast to average between 71 and 90 percent. East of the Divide streamflow forecasts do not reflect increases in precipitation from January 1 to January 9.

Below are the River Basin streamflow forecasts for the period April 1 through July 31. THESE FORECASTS ASSUME NEAR NORMAL MOISTURE AND RUNOFF CONDITIONS JANUARY THROUGH JULY AND DO NOT ACCOUNT FOR WELL BELOW AVERAGE (70% or less) OR ABOVE AVERAGE (110% or more) SNOWMELT OR SPRING RAIN.

RIVER BASIN	April-July THIS YEAR % OF AVERAGE	April-July LAST YEAR % OF AVERAGE
COLUMBIA	84 to 97	77 to 88
KOOTENAI	79 to 90	81 to 92
FLATHEAD	79 to 91	76 to 84
UPPER CLARK FORK	93 to 109	73 to 89
BITTERROOT	81 to 96	73 to 87
LOWER CLARK FORK	86 to 93	83 to 90
MISSOURI	67 to 87	57 to 74
JEFFERSON	72 to 94	56 to 78
MADISON	80 to 90	86 to 95
GALLATIN	87 to 98	88 to 99
MISSOURI MAINSTEM	75 to 89	69 to 83
SMITH-JUDITH-MUSSELSHELL	74 to 103	36 to 51
SUN-TETON-MARIAS	45 to 64	53 to 67
MILK	54 to 84	47 to 72
ST. MARY	68 to 78	70 to 79
YELLOWSTONE	81 to 95	74 to 87
UPPER YELLOWSTONE	83 to 95	79 to 90
LOWER YELLOWSTONE	78 to 95	66 to 82
STATE-WIDE	72 to 88	67 to 81

NOTE: The APRIL-JULY LAST YEAR % OF AVERAGE column above, is what was forecast last year, not what actually occurred. Streamflow forecasts west of the Divide reflect additional precipitation from January 1 to January 9.

Surface Water Supply Index

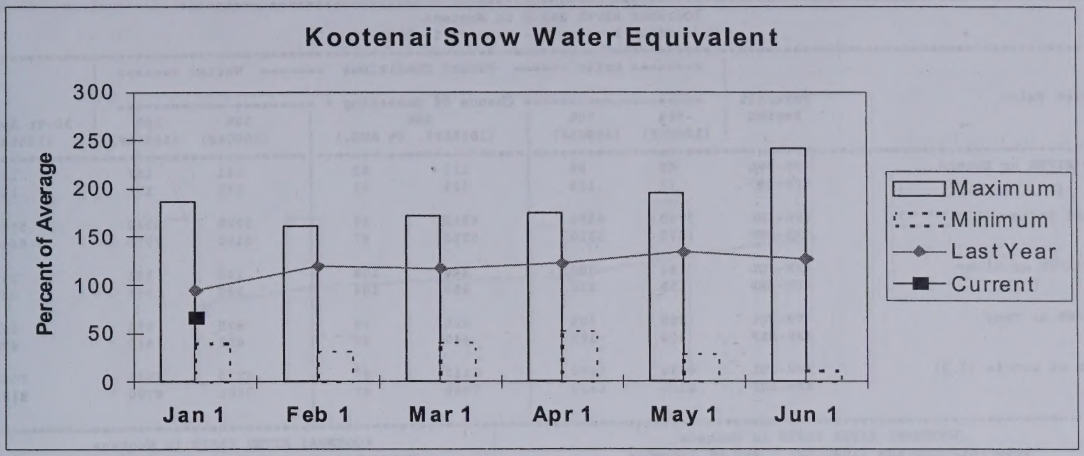
The Surface Water Supply Index (SWSI) is a measure of available surface water availability for the spring and summer months. Water users that rely on mountain precipitation can use the index to evaluate seasonal surface water supplies. The SWSI accounts for mountain snowpack, mountain precipitation, streamflow, reservoir storage, and soil moisture.

SWSI RATING	SURFACE WATER CONDITION
+3.0 to +4.0	Extremely Wet
+2.0 to +3.0	Moderately Wet
+1.0 to +2.0	Slightly Wet
-1.0 to +1.0	Near Average
-1.0 to -2.0	Slightly Dry
-2.0 to -3.0	Moderately Dry
-3.0 to -4.0	Extremely Dry

This year SWSI	Last year SWSI	Basin
-2.3	-1.2	Tobacco River
-3.4	-0.8	Kootenai Ft. Steele to Libby Dam
-1.6	+0.6	Kootenai River below Libby Dam
+0.2	-0.4	Fisher River
-1.7	+1.0	Yaak River
-3.3	-2.2	North Fork Flathead River
-3.3	-2.0	Middle FORK Flathead River
-0.2	-0.2	South Fork Flathead River
-2.3	-1.2	Flathead River at Columbia Falls
-1.2	-0.8	Swan River
-2.4	-2.0	Flathead River at Polson
-1.9	----	Mission Valley
+0.2	----	Little Bitterroot River
+1.3	-0.5	Clark Fork River above Milltown
+0.5	+0.2	Blackfoot River
+0.1	+0.6	Bitterroot River
+1.0	+0.1	Clark Fork River below Bitterroot River
-1.2	-0.7	Clark Fork River below Flathead River
-0.2	-1.1	Beaverhead River
-0.5	----	Ruby River
+0.3	+0.3	Big Hole River
+0.7	-1.8	Boulder River (Jefferson)
+1.4	----	Jefferson River
0.0	+0.5	Madison River
+1.0	+0.9	Gallatin River
+0.2	0.0	Missouri River above Canyon Ferry
-0.3	-1.3	Missouri River below Canyon Ferry
+0.5	-0.5	Smith River
-2.3	-2.3	Sun River
+0.2	-0.7	Teton River
-2.2	-3.9	Birch/Dupuyer Creeks
+1.3	----	Upper Judith River
-1.8	----	Marias River above Tiber
-1.7	----	Marias River below Tiber
+1.2	----	Musselshell River
0.0	----	Missouri River above Ft. Peck
-2.7	-3.5	Missouri River below Ft. Peck
-2.3	-2.8	St. Mary River
+0.2	-0.4	Milk River
-1.6	-1.3	Dearborn River near Craig
+0.4	+0.8	Yellowstone River above Livingston
+1.9	-2.4	Shields River
+0.6	-0.9	Boulder River (Yellowstone)
-0.5	+0.4	Stillwater River
0.0	----	Rock/Red Lodge Creeks
-0.9	+0.9	Clarks Fork River
+0.1	+0.6	Yellowstone River above Bighorn River
+0.3	-0.6	Bighorn River below Bighorn Lake
+1.0	+0.2	Little Bighorn River
+0.2	+0.1	Yellowstone River below Bighorn River
+2.5	----	Tongue River
+1.1	-0.2	Powder River

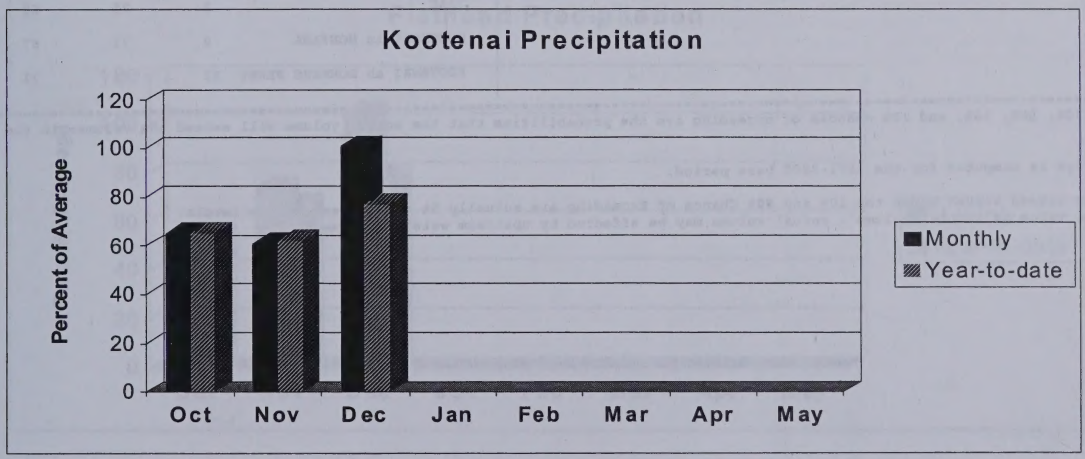
Kootenai River Basin in Montana

Snowpack conditions in the Kootenai River Basin were well below average. Snow water content was 67 percent of average and 71 percent of last year.



January maximum swe was established in 1997 and minimum was in 1977; February maximum swe was in 1997 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1977; April maximum swe was in 1974 and minimum swe was in 1977and 2005; May maximum swe was in 1974 and minimum swe was in 1977; and June maximum swe was in 1974 and minimum swe was in 1992. Average is for the period 1971 through 2000.

Mountain precipitation during December was 96 percent of average and 69 percent of last year. Valley precipitation during December was 132 percent of average and 138 percent of last year. Mountain and valley water year precipitation, beginning October 1, 2008, was 77 percent of average and 70 percent of last year.



Assuming near average precipitation, January through July, the spring and early summer streamflow forecasts average 79 percent to 90 percent.

Lake Koocanusa storage was 121 percent of average and 100 percent of last year.

Surface Water Supply Index (SWSI) was -1.2 in the Tobacco River; -0.8 in the Kootenai Ft. Steele to Libby Dam; +0.6 in the Kootenai River below Libby Dam; -0.4 in the Fisher River; and +1.0 in the Yaak River.

KOOTENAI RIVER BASIN in Montana
Streamflow Forecasts - January 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
TOBACCO RIVER nr Eureka	APR-JUL	69	95	113	83	131	157	136
	APR-SEP	77	105	124	83	143	171	150
LIBBY RES Inflow (1,2)	APR-JUL	3790	4560	4910	87	5260	6030	5640
	APR-SEP	4470	5370	5780	87	6190	7090	6640
FISHER RIVER nr Libby	APR-JUL	143	200	240	104	280	335	230
	APR-SEP	155	215	255	104	295	355	245
YAAK RIVER nr Troy	APR-JUL	285	365	420	90	475	555	465
	APR-SEP	300	385	440	90	495	580	490
KOOTENAI at Leonia (1,2)	APR-JUL	4630	5650	6110	87	6570	7590	7040
	APR-SEP	5330	6520	7060	87	7600	8790	8120

KOOTENAI RIVER BASIN in Montana
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
LAKE KOOCANUSA	5748.0	3747.0	3754.0	3090.1

KOOTENAI RIVER BASIN in Montana
Watershed Snowpack Analysis - January 1, 2009

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
KOOTENAY in CANADA	13	79	74
KOOTENAI MAINTSTEM	3	69	67
TOBACCO	3	65	61
FISHER	1	122	103
YAAK	2	73	68
KOOTENAI in MONTANA	9	71	67
KOOTENAI ab BONNERS FERRY	22	75	71

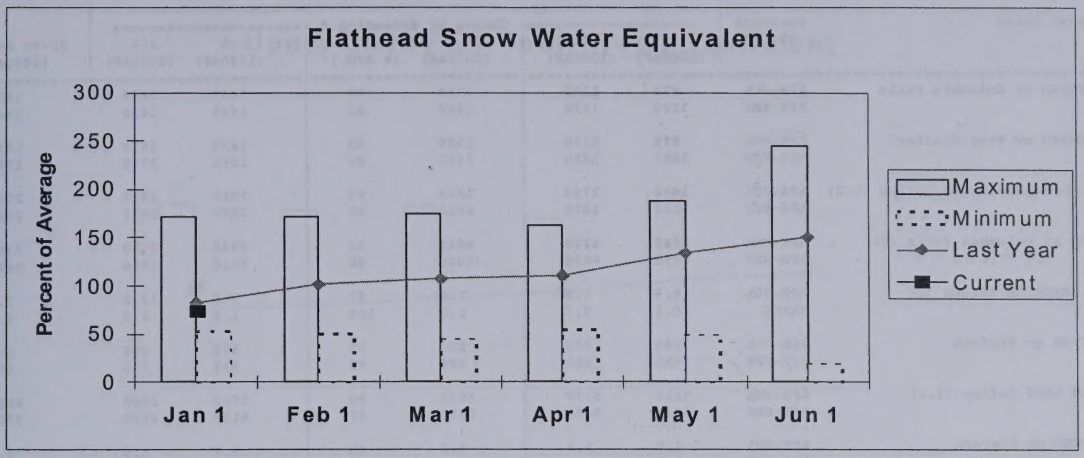
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

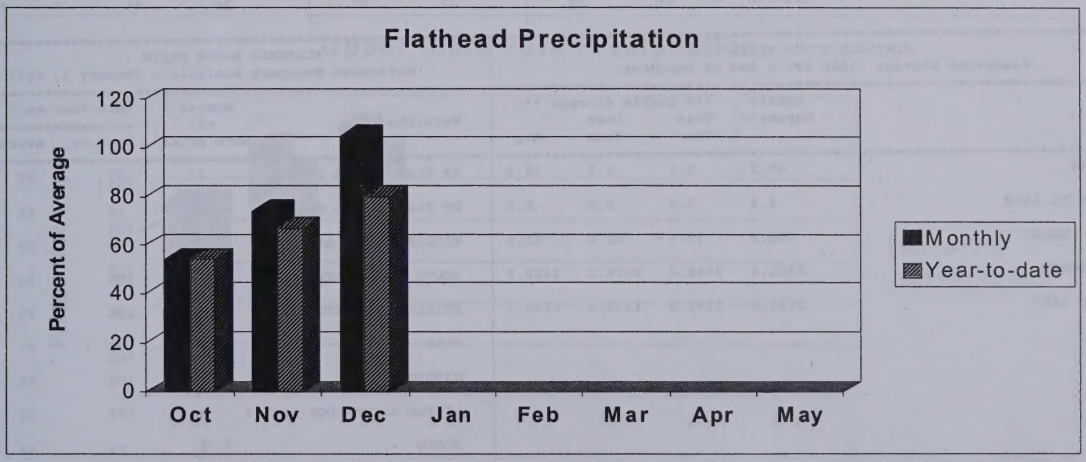
Flathead River Basin

Snowpack conditions in the Flathead River Basin were below average. Snow water content was 74 percent of average and 88 percent of last year.



January maximum swe was established in 1997 and minimum was in 2001; February maximum swe was in 1997 and minimum was in 2001; March maximum swe was in 1972 and minimum was in 2005; April maximum swe was in 1972 and minimum was in 2005; May maximum swe was in 1972 and minimum was in 1992; and June maximum swe was in 1974 and minimum was in 1992. Average is for the period 1971 through 2000.

Mountain precipitation during December was 102 percent of average and 87 percent of last year. Valley precipitation during December was 132 percent of average and 119 percent of last year. Mountain and valley water year precipitation, beginning October 1, 2008, was 80 percent of average and 89 percent of last year.



Assuming near average precipitation, January through July, the spring and early summer streamflow forecasts average 79 percent to 91 percent.

Combined Camas reservoir storage was 45 percent of average and 143 percent of last year; Lower Jocko Lake was empty; combined Mission Valley reservoir storage was 109 percent of average and 234 percent of last year; Hungry Horse storage was at 109 percent of average and 99 percent of last year; and Flathead Lake storage was 106 percent of average and 100 percent of last year.

Surface Water Supply Index (SWSI) was -3.3 in the North Fork Flathead River; -3.3 in the Middle Fork Flathead River; -0.2 in the South Fork Flathead River; -2.3 in the Flathead River at Columbia Falls; -1.2 in the Swan River; -2.4 in the Flathead River at Polson; -1.9 in the Mission Valley; and +0.2 in the Little Bitterroot River.

FLATHEAD RIVER BASIN
Streamflow Forecasts - January 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
NF FLATHEAD nr Columbia Falls	APR-JUL	975	1180	1320	82	1460	1660	1620
	APR-SEP	1110	1320	1460	81	1600	1810	1800
MF FLATHEAD nr West Glacier	APR-JUL	975	1170	1300	82	1430	1620	1590
	APR-SEP	1090	1290	1420	82	1550	1750	1740
HUNGRY HORSE Reservoir Inflow (1,2)	APR-JUL	1430	1750	1890	95	2030	2350	2000
	APR-SEP	1550	1870	2010	95	2150	2470	2120
FLATHEAD at Columbia Falls (2)	APR-JUL	3640	4220	4610	86	5000	5580	5350
	APR-SEP	4050	4630	5020	86	5410	5990	5820
ASHLEY CREEK nr Marion (2)	APR-JUL	0.8	4.5	7.0	97	9.5	13.2	7.2
	MARCH	0.1	0.7	1.1	108	1.6	2.2	1.1
SWAN RIVER nr Bigfork	APR-JUL	385	465	520	92	575	655	565
	APR-SEP	455	535	595	92	655	735	645
FLATHEAD LAKE Inflow (1,2)	APR-JUL	5010	5370	5530	90	5690	6050	6180
	APR-SEP	5430	5820	5990	89	6160	6550	6700
MILL CREEK nr Niarada	APR-JUL	1.6	2.9	3.8	93	4.7	6.0	4.1
	APR-SEP	1.9	3.2	4.1	92	5.0	6.3	4.5
SOUTH CROW CREEK nr Ronan	APR-JUL	7.3	8.6	9.4	93	10.2	11.5	10.1
	APR-SEP	8.4	9.8	10.7	93	11.6	13.0	11.5
MISSION CREEK nr St Ignatius	APR-JUL	19.8	22	24	95	26	28	25
	APR-SEP	24	27	29	96	31	34	30
SOUTH FORK JOCKO RV nr Arlee	APR-JUL	13.1	22	28	93	34	43	30
	APR-SEP	16.4	26	32	94	38	48	34
NF JOCKO RV blw Tabor Feeder Canal	APR-JUL	21	26	30	96	34	39	31
	APR-SEP	25	30	33	97	36	41	34

FLATHEAD RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
CAMAS (4)	45.2	8.7	6.1	19.5
LOWER JOCKO LAKE	6.4	0.0	0.0	0.1
MISSION VALLEY (8)	100.0	35.6	15.2	32.6
HUNGRY HORSE	3451.0	2646.0	2676.0	2420.9
FLATHEAD LAKE	1791.0	1181.0	1158.0	1192.7

FLATHEAD RIVER BASIN
Watershed Snowpack Analysis - January 1, 2009

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
NF FLATHEAD in CANADA	2	67	66
NF FLATHEAD in MONTANA	6	71	63
MIDDLE FORK FLATHEAD	5	70	59
SOUTH FORK FLATHEAD	6	105	80
STILLWATER-WHITEFISH	4	104	93
SWAN	6	103	77
MISSION VALLEY	3	103	75
LITTLE BITTERROOT-ASHLEY	4	107	99
JOCKO	4	93	84
FLATHEAD in MONTANA	27	88	74
FLATHEAD RIVER BASIN	29	88	73

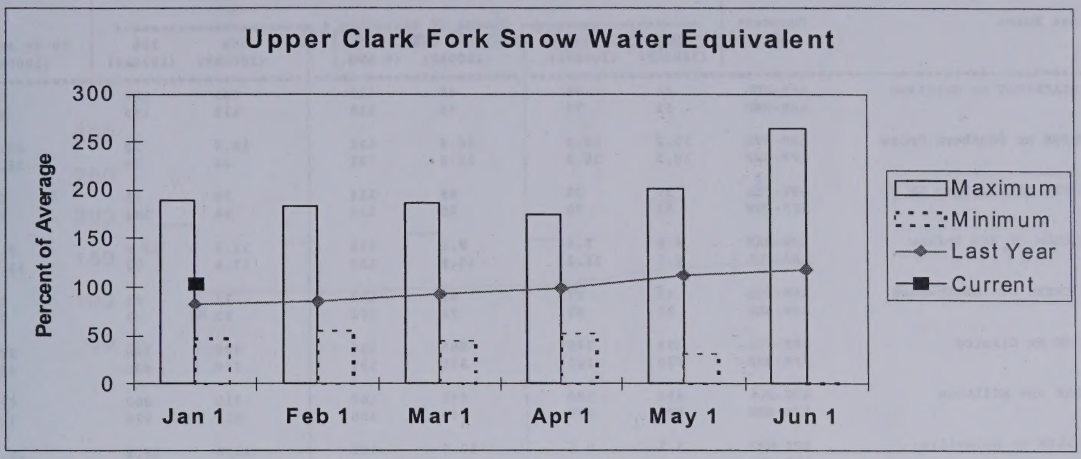
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

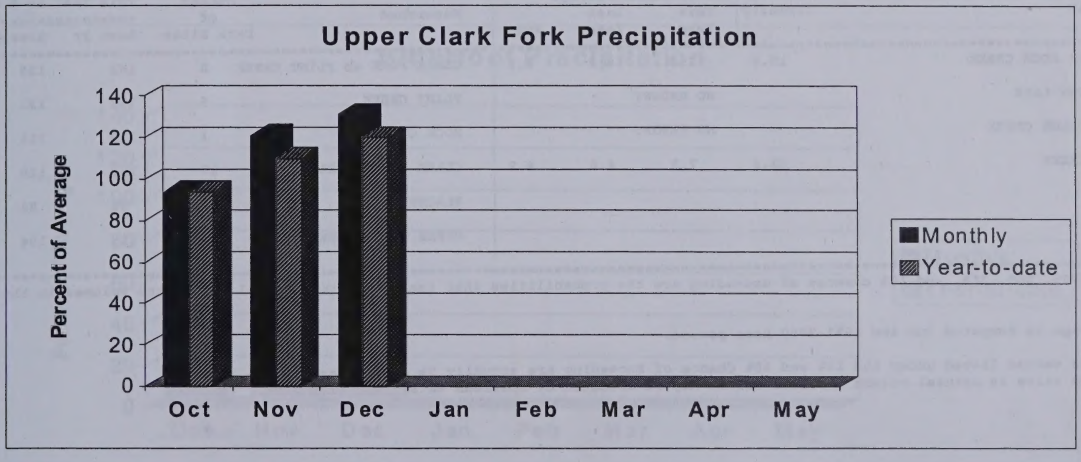
Upper Clark Fork River Basin

Snowpack conditions in the Upper Clark Fork River Basin were near average. Snow water content was 104 percent of average and 115 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 2005; April maximum swe was in 1972 and minimum was in 2005; May maximum swe was in 1972 and minimum swe was in 1977; and June maximum swe was in 1975 and minimum swe was in 1987. Average is for the period 1971 through 2000.

Mountain precipitation during December was 126 percent of average and 122 percent of last year. Valley precipitation during December was 181 percent of average and 263 percent of last year. Mountain and valley water year precipitation, beginning October 1, 2008, was 120 percent of average and 122 percent of last year.



Assuming near average precipitation, January through July, the spring and early summer streamflow forecasts average 93 percent to 109 percent.

East Fork Rock Creek storage was 134 percent of average and 124 percent of last year; Georgetown Lake was not available; Lower Willow Creek storage was not available; and Nevada Creek storage was 174 percent of average and 159 percent of last year.

Surface Water Supply Index (SWSI) was +1.3 in the Clark Fork River above Milltown; and +0.5 in the Blackfoot River.

UPPER CLARK FORK RIVER BASIN
Streamflow Forecasts - January 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
LITTLE BLACKFOOT nr Garrison	APR-JUL	44	69	86	113	103	128	76
	APR-SEP	51	77	95	113	113	139	84
FLINT CREEK nr Southern Cross	APR-JUL	10.2	14.0	16.6	121	19.2	23	13.7
	APR-SEP	10.5	15.9	19.6	121	23	29	16.2
FLINT CREEK blw Boulder Ck	APR-JUL	39	55	65	116	75	91	56
	APR-SEP	51	70	82	116	94	113	71
LOWER WILLOW CK RES Inflow	APR-MAY	4.9	7.6	9.4	115	11.2	13.9	8.2
	APR-JUL	6.5	11.2	14.4	115	17.6	22	12.5
MF ROCK CREEK nr Philipsburg	APR-JUL	46	57	65	102	73	84	64
	APR-SEP	53	65	73	101	81	93	72
ROCK CREEK nr Clinton	APR-JUL	189	245	285	106	325	380	270
	APR-SEP	220	285	325	107	365	430	305
CLARK FORK abv Milltown	APR-JUL	490	580	645	107	710	800	605
	APR-SEP	575	675	745	106	815	915	705
NEVADA CREEK nr Helmville	APR-MAY	5.3	8.6	10.8	105	13.0	16.3	10.3
	APR-JUL	9.4	14.6	18.2	105	22	27	17.3
BLACKFOOT RIVER nr Bonner	APR-JUL	515	695	815	101	935	1120	805
	APR-SEP	590	780	905	102	1030	1220	890
CLARK FORK abv Missoula	APR-JUL	1140	1320	1440	102	1560	1740	1410
	APR-SEP	1310	1500	1630	102	1760	1950	1600

UPPER CLARK FORK RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
EAST FORK ROCK CREEK	15.6	11.0	8.9	8.2
GEORGETOWN LAKE		NO REPORT		
LOWER WILLOW CREEK		NO REPORT		
NEVADA CREEK	12.6	7.3	4.6	4.2

UPPER CLARK FORK RIVER BASIN
Watershed Snowpack Analysis - January 1, 2009

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
CLARK FORK ab FLINT CREEK	8	163	125
FLINT CREEK	5	152	132
ROCK CREEK	3	119	116
CLARK FORK ab BLACKFOOT	13	139	120
BLACKFOOT	11	91	82
UPPER CLARK FORK BASIN	24	115	104

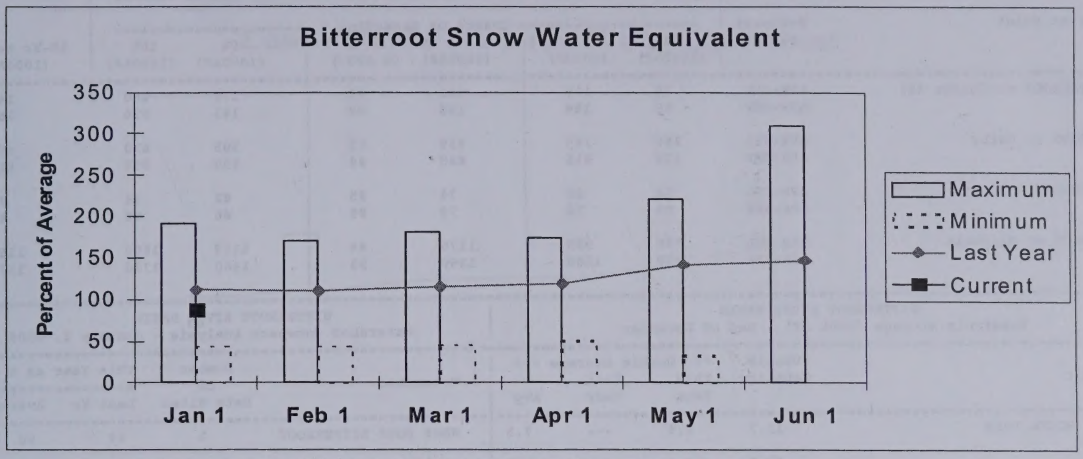
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

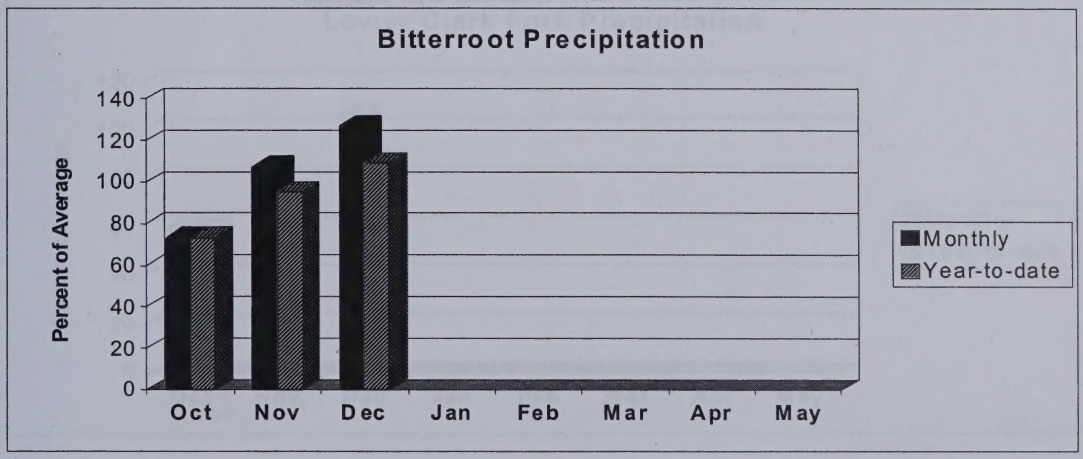
Bitterroot River Basin

Snowpack conditions in the Bitterroot River Basin were below average. Snow water content was 87 percent of average and 79 percent of last year.



January maximum swe was established in 1997 and minimum swe in 1977; February maximum swe was in 1972 and minimum was in 1977; March maximum swe was in 1972 and minimum swe was in 1977 and 2005; April maximum swe was in 1972 and minimum swe was in 2005; May maximum swe was in 1972 and minimum swe was in 1987; and June maximum swe was 1972 and 1974 and 1974 and minimum swe was in 1987, 1992, 1994, and 2001. Average is for the period 1971 through 2000.

Mountain precipitation during December was 123 percent of average and 91 percent of last year. Valley precipitation during December was 176 percent of average and 139 percent of last year. Mountain and valley water year precipitation, beginning October 1, 2008, was 109 percent of average and 92 percent of last year.



Assuming near average precipitation, January through July, the spring and early summer streamflow forecasts average 81 percent to 96 percent.

Painted Rocks Lake storage was 125 percent of average and Como storage was 173 percent of average and 151 percent of last year.

Surface Water Supply Index (SWSI) was +0.1 in the Bitterroot River.

BITTERROOT RIVER BASIN
Streamflow Forecasts - January 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
WF BITTERROOT nr Conner (2)	APR-JUL	80	116	141	99	166	200	143
	APR-SEP	90	129	155	99	181	220	157
BITTERROOT nr Darby	APR-JUL	260	365	435	95	505	610	460
	APR-SEP	315	415	485	94	555	655	515
COMO RESERVOIR Inflow	APR-JUL	54	66	74	95	82	94	78
	APR-SEP	58	70	78	95	86	98	82
BITTERROOT at Missoula	APR-JUL	735	995	1170	94	1350	1600	1250
	APR-SEP	830	1100	1280	93	1460	1730	1370

BITTERROOT RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
PAINTED ROCKS LAKE	31.7	9.4	---	7.5
COMO	34.9	15.4	10.2	8.9

BITTERROOT RIVER BASIN
Watershed Snowpack Analysis - January 1, 2009

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
WEST FORK BITTERROOT	2	89	90
EAST SIDE BITTERROOT	3	83	90
WEST SIDE BITTERROOT	3	73	85
BITTERROOT RIVER BASIN	7	79	87

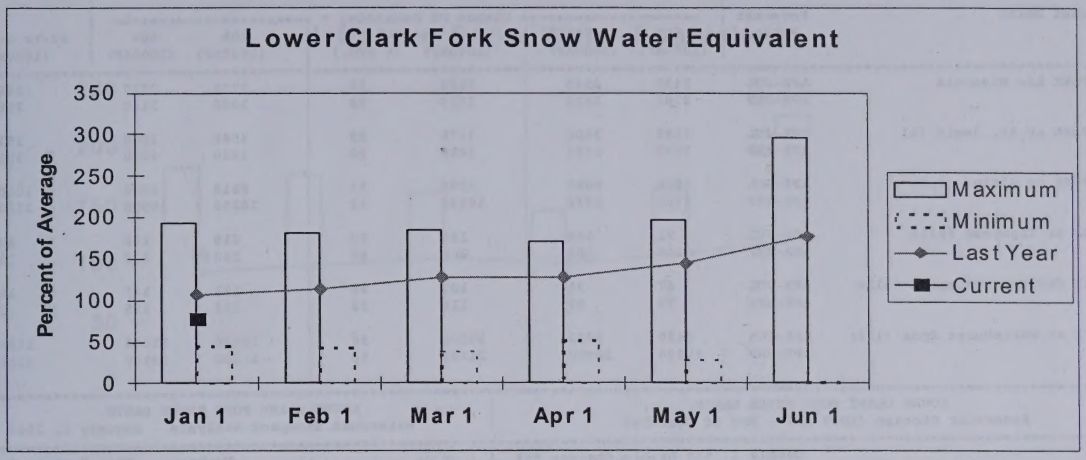
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

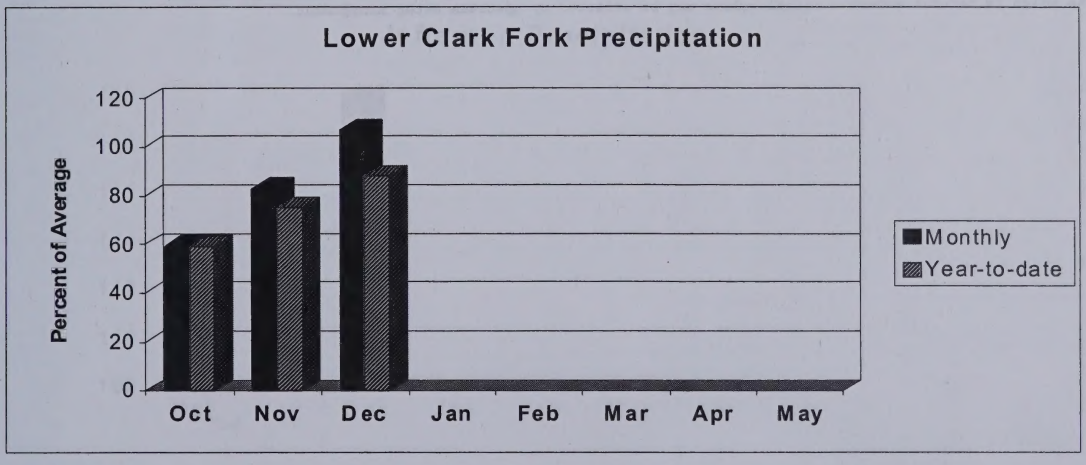
Lower Clark Fork River Basin

Snowpack conditions in the Lower Clark Fork River Basin were below average. Snow water content was 78 percent of average and 73 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum swe was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum was in 2005; April maximum swe was in 1972 and minimum swe was in 2005; May maximum swe was in 1972 and minimum swe was in 1977; and June maximum swe was in 1974 and minimum swe was in 1977. Average is for the period 1971 through 2000.

Mountain precipitation during December was 105 percent of average and 70 percent of last year. Valley precipitation during December was 116 percent of average and 77 percent of last year. Mountain and valley water year precipitation, beginning October 1, 2008, was 88 percent of average and 75 percent of last year.



Assuming near average precipitation, January through July, the spring and early summer streamflow forecasts average 86 percent to 93 percent.

Noxon Rapids storage was 101 percent of average and 99 percent of last year.

Surface Water Supply Index (SWSI) was +1.0 in the Clark Fork River below Bitterroot River and -1.2 in the Clark Fork River below Flathead River.

LOWER CLARK FORK RIVER BASIN
Streamflow Forecasts - January 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
CLARK FORK blw Missoula	APR-JUL	2420	2540	2620	99	2700	2820	2660
	APR-SEP	2700	2820	2910	98	3000	3120	2960
CLARK FORK at St. Regis (1)	APR-JUL	3250	3400	3470	99	3540	3690	3520
	APR-SEP	3620	3780	3850	99	3920	4080	3910
CLARK FORK nr Plains (1,2)	APR-JUL	8840	9090	9200	91	9310	9560	10100
	APR-SEP	9700	9970	10100	91	10200	10500	11100
THOMPSON nr Thompson Falls	APR-JUL	91	144	180	88	215	270	205
	APR-SEP	106	162	200	87	240	295	230
PROSPECT CREEK at Thompson Falls	APR-JUL	67	91	107	92	123	147	116
	APR-SEP	73	97	114	92	131	155	124
CLARK FK at Whitehorse Rpds (1,2)	APR-JUL	9430	9960	10200	90	10400	11000	11300
	APR-SEP	10300	10900	11200	90	11500	12100	12500

LOWER CLARK FORK RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
NOXON RAPIDS	335.0	319.0	321.1	315.8

LOWER CLARK FORK RIVER BASIN
Watershed Snowpack Analysis - January 1, 2009

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
LOWER CLARK FORK BASIN	8	73	78

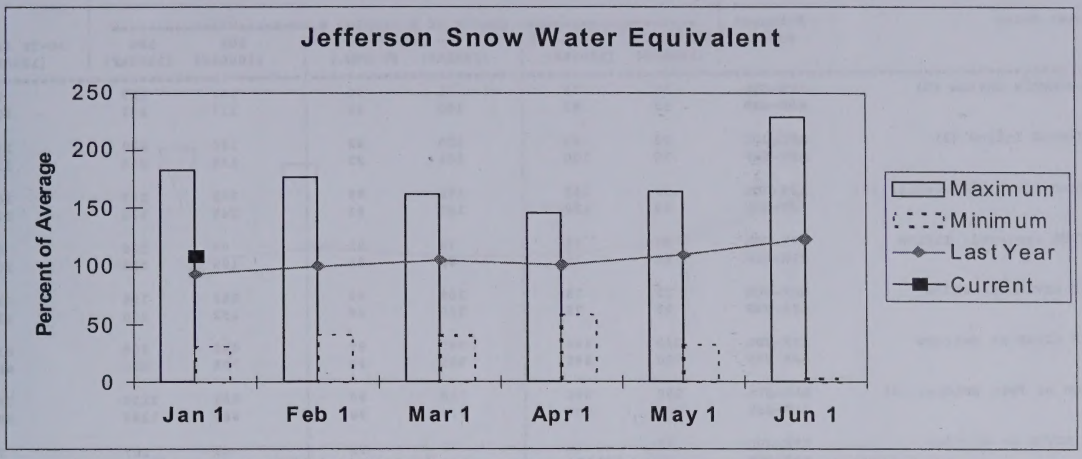
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

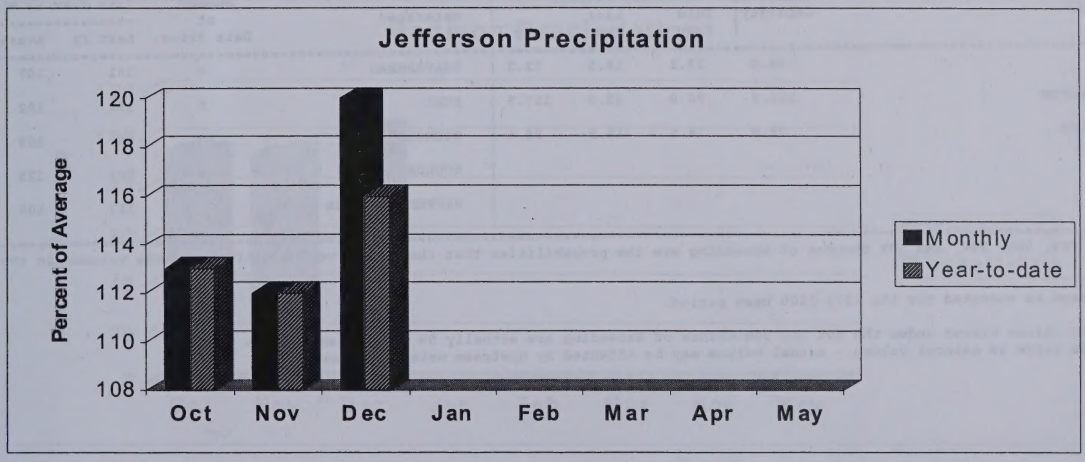
Jefferson River Basin

Snowpack conditions in the Jefferson River Basin were slightly above average. Snow water content was 109 percent of average and 117 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum swe was in 1997 and minimum was in 1977; March maximum swe was in 1972 and minimum was in 1977; April maximum swe was in 1997 and minimum was in 1977; May maximum swe was in 1975 and minimum swe was in 1977; and June maximum swe was in 1982 and minimum in 1987. Average is for the period 1971 through 2000.

Mountain precipitation during December was 116 percent of average and 97 percent of last year. Valley precipitation during December was 181 percent of average and 118 percent of last year. Mountain and valley water year precipitation, beginning October 1, 2008, was 116 percent of average and 104 percent of last year.



Assuming near average precipitation, January through July, the spring and early summer streamflow forecasts average 72 percent to 94 percent.

Lima storage was 103 percent of average and 179 percent of last year; Clark Canyon storage was 70 percent of average and 104 percent of last year; and Ruby River storage was 96 percent of average and 98 percent of last year.

Surface Water Supply Index (SWSI) was -0.2 in the Beaverhead River; -0.5 in the Ruby River; +0.3 in the Big Hole River; +0.7 in the Boulder River; and +1.4 in the Jefferson River as a whole.

JEFFERSON RIVER BASIN
Streamflow Forecasts - January 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
LIMA RESERVOIR Inflow (2)	APR-JUL	55	76	91	95	106	127	96
	APR-SEP	59	83	100	96	117	141	104
CLARK CANYON Inflow (2)	APR-JUL	22	80	120	92	160	220	131
	APR-SEP	36	100	144	92	188	250	156
BEAVERHEAD RIVER at Barretts (2)	APR-JUL	29	105	156	93	205	285	168
	APR-SEP	40	128	187	94	245	335	200
RUBY RIVER Reservoir Inflow	APR-JUL	43	63	76	91	89	109	84
	APR-SEP	52	75	90	89	105	128	101
BIG HOLE RIVER at Wisdom	APR-JUL	22	73	108	89	143	194	121
	APR-SEP	23	78	115	89	152	205	130
BIG HOLE RIVER nr Melrose	APR-JUL	290	440	545	89	650	800	610
	APR-SEP	320	485	595	90	705	870	660
JEFFERSON nr Twin Bridges (2)	APR-JUL	290	540	710	90	880	1130	785
	APR-SEP	305	580	770	88	960	1240	880
BOULDER RIVER nr Boulder	APR-JUL	47	65	77	99	89	107	78
	APR-SEP	51	70	83	98	96	115	85
WILLOW CREEK Reservoir Inflow	APR-JUL	6.4	13.4	18.2	102	23	30	17.9
	APR-SEP	7.3	14.8	20	100	25	33	20
JEFFERSON RIVER nr Three Forks (2)	APR-JUL	320	595	780	100	965	1240	780
	APR-SEP	340	645	850	99	1060	1360	860

JEFFERSON RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
LIMA	84.0	33.1	18.5	32.2
CLARK CANYON	255.6	96.0	92.0	137.5
RUBY RIVER	38.8	19.5	19.9	20.4

JEFFERSON RIVER BASIN
Watershed Snowpack Analysis - January 1, 2009

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
BEAVERHEAD	8	101	107
RUBY	5	112	102
BIGHOLE	10	104	109
BOULDER	6	203	125
JEFFERSON RIVER BASIN	24	117	109

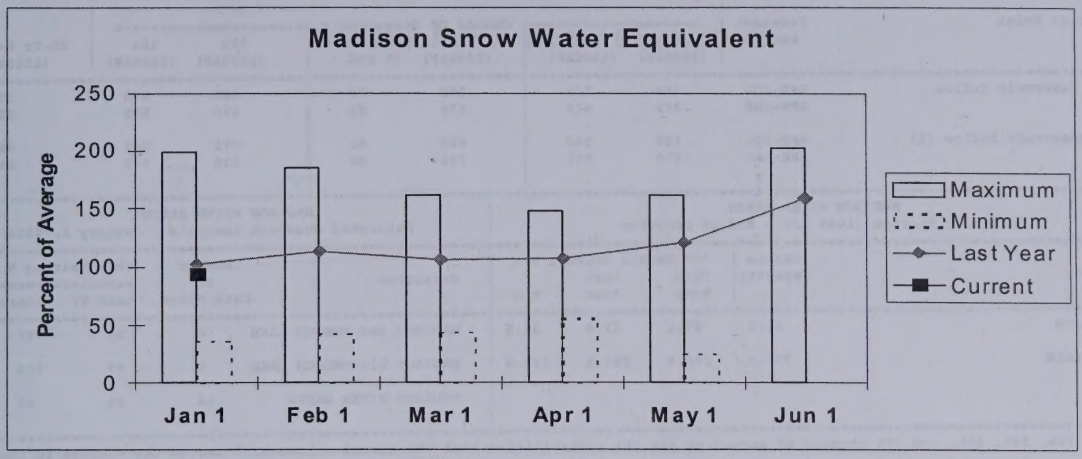
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

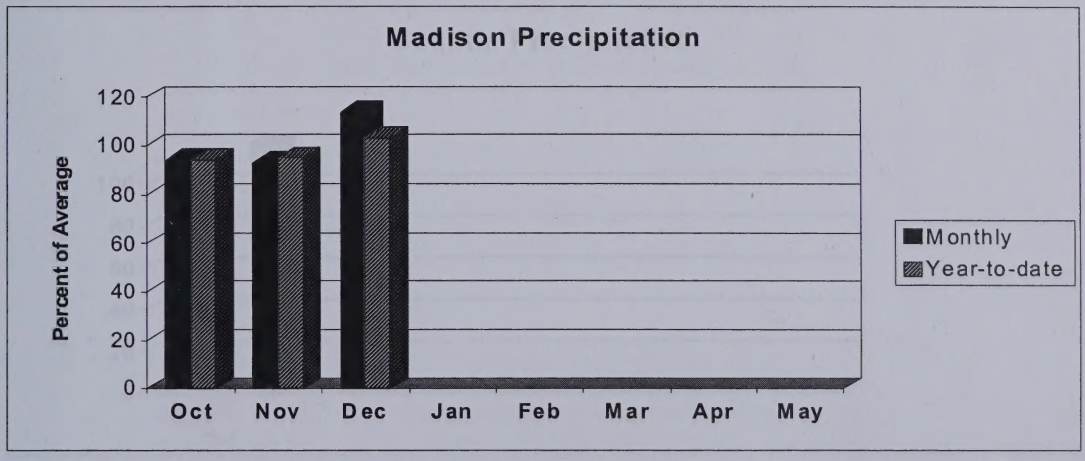
Madison River Basin

Snowpack conditions in the Madison River Basin were slightly below average. Snow water content was 94 percent of average and 92 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum swe was in 1997 and minimum was in 1977; March maximum swe was in 1997 and minimum was in 1977; April maximum swe was in 1997 and minimum was in 1977; May maximum swe was in 1997 and minimum swe was in 1977; and June maximum swe was in 1995 and minimum in 1987 and 2001. Average is for the period 1971 through 2000.

Mountain and valley precipitation during December was 114 percent of average and 88 percent of last year. Mountain and valley water year precipitation, beginning October 1, 2008, was 103 percent of average and 89 percent of last year.



Assuming near average precipitation, January through July, the spring and early summer streamflow forecasts average 80 percent to 90 percent.

Ennis Lake storage was 87 percent of average and 100 percent of last year and Hebgen Lake storage was 107 percent of average and 101 percent of last year.

Surface Water Supply Index (SWSI) was 0.0 for the Madison River.

MADISON RIVER BASIN

Streamflow Forecasts - January 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
HEBGEN Reservoir Inflow	APR-JUL	265	315	350	90	385	435	390
	APR-SEP	345	410	450	90	490	555	500
ENNIS Reservoir Inflow (2)	APR-JUL	450	540	605	89	670	760	680
	APR-SEP	570	680	755	89	830	940	850

MADISON RIVER BASIN

Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
ENNIS LAKE	41.0	27.4	27.4	31.5
HEBGEN LAKE	377.5	285.8	282.2	267.6

MADISON RIVER BASIN

Watershed Snowpack Analysis - January 1, 2009

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
MADISON abv HEBGEN LAKE	6	86	86
MADISON blw HEBGEN LAKE	8	97	100
MADISON RIVER BASIN	14	92	94

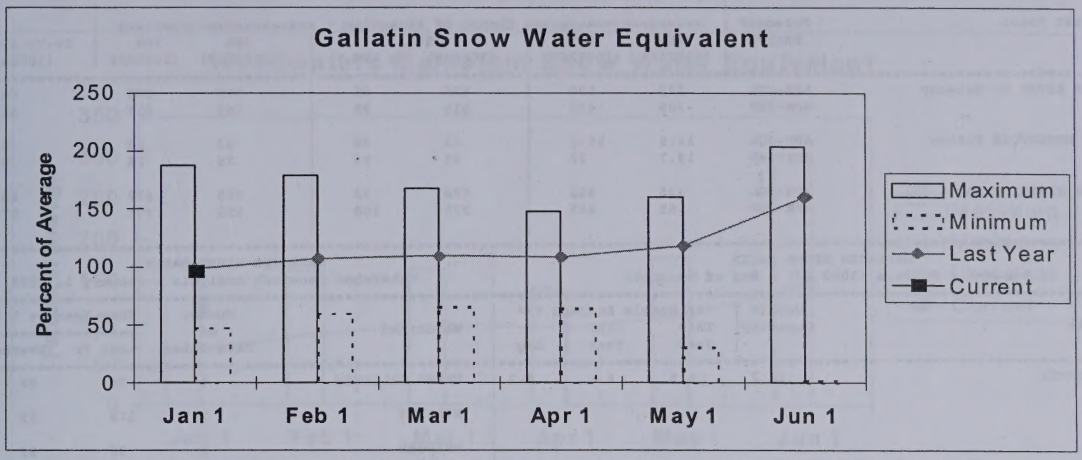
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

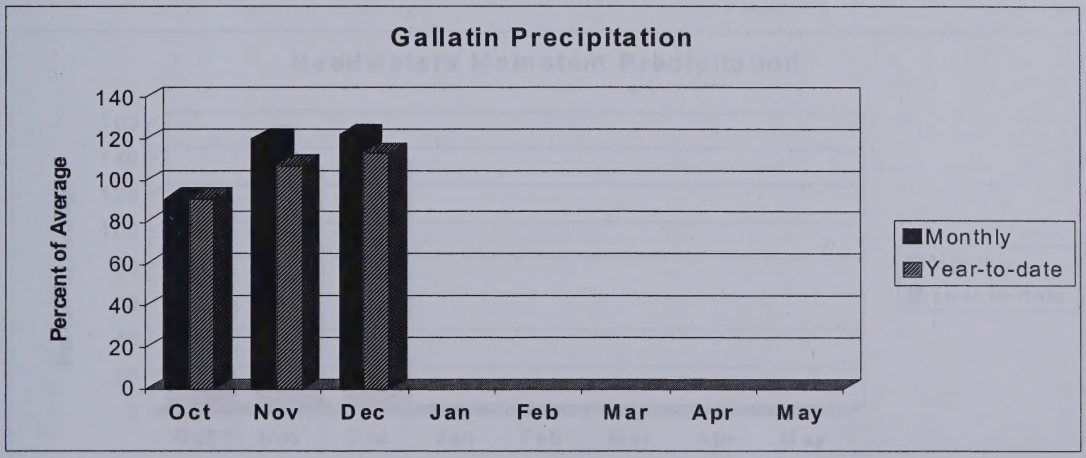
Gallatin River Basin

Snowpack conditions in the Gallatin River Basin were near average. Snow water content was 96 percent of average and 98 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1966; February maximum swe was in 1997 and minimum was in 1977; March maximum swe was in 1997 and minimum was in 1977and 2005; April maximum swe was in 1997 and minimum was in 1987; May maximum swe was in 1970 and minimum swe was in 1987; and June maximum swe was in 1975 and minimum in 2001. Average is for the period 1971 through 2000.

Mountain precipitation during December was 122 percent of average and 95 percent of last year. Valley precipitation during December was 111 percent of average and 274 percent of last year. Mountain and valley water year precipitation, beginning October 1, 2008, was 113 percent of average and 97 percent of last year.



Assuming near average precipitation, January through July, the spring and early summer streamflow forecasts average 87 percent to 98 percent.

Middle Creek storage was 159 percent of average and 102 percent of last year.

Surface Water Supply Index (SWSI) was +1.0 for the Gallatin River.

GALLATIN RIVER BASIN
Streamflow Forecasts - January 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
GALLATIN RIVER nr Gateway	APR-JUL	325	390	435	99	480	545	440
	APR-SEP	385	460	510	99	560	635	515
HYALITE RESERVOIR Inflow	APR-JUL	16.9	19.3	21	96	23	25	22
	APR-SEP	19.7	22	24	96	26	28	25
GALLATIN RIVER at Logan (2)	APR-JUL	305	415	490	99	565	675	495
	APR-SEP	365	485	570	100	655	775	570

GALLATIN RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MIDDLE CREEK	10.2	6.5	6.4	4.1

GALLATIN RIVER BASIN
Watershed Snowpack Analysis - January 1, 2009

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
UPPER GALLATIN	4	94	98
HYALITE	2	112	99
BRIDGER	2	96	89
GALLATIN RIVER BASIN	8	98	96

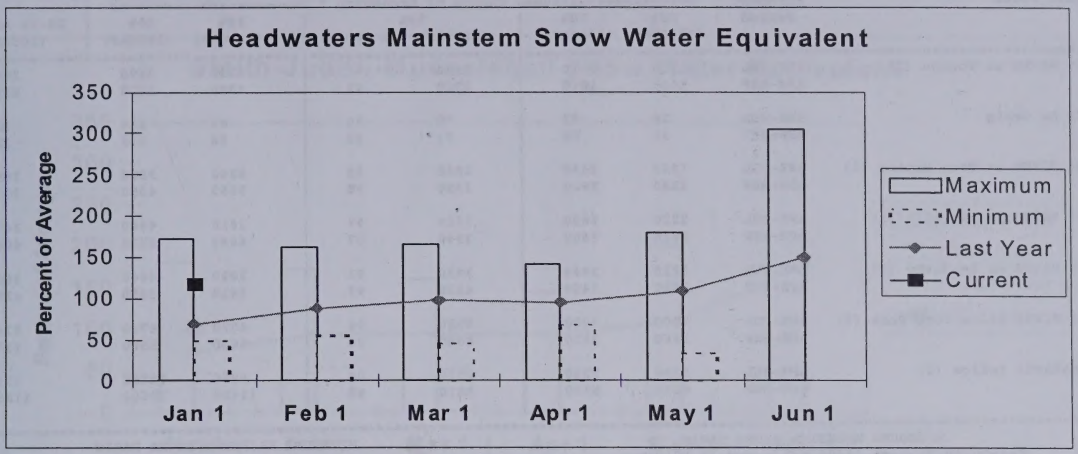
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

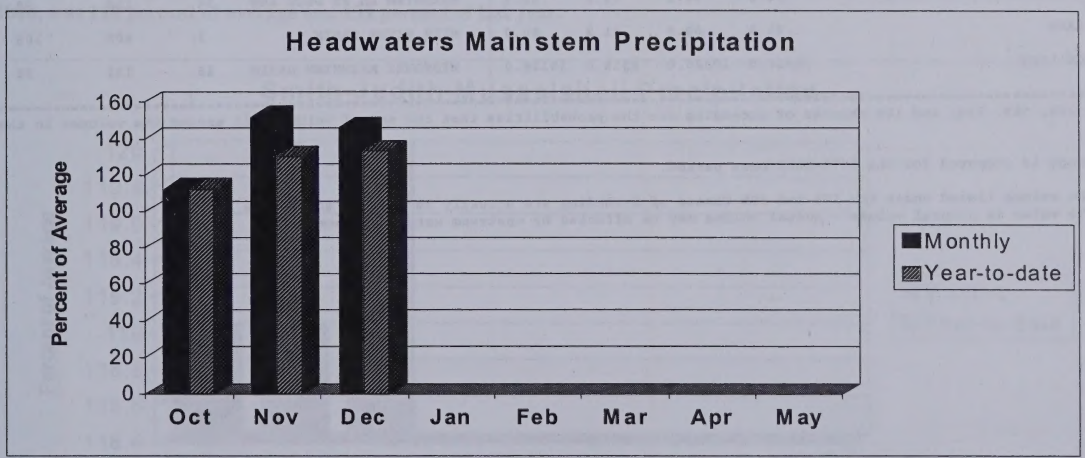
Missouri Mainstem River Basin

Snowpack conditions for the Missouri Mainstem were slightly below average. Snow water content is 93 percent of average and 133 percent of last year. Snowpack in the Headwaters Missouri Mainstem River Basin were above average. Snow water content was 118 percent of average and 172 percent of last year.



January maximum swe was established in 1997 and minimum swe in 1977; February maximum swe was in 1972 and minimum swe was in 1977 and 1988; March maximum swe in 1972 and minimum swe was in 1977; April maximum swe was in 1972 and minimum swe was in 1961, 1966 and 2005; May maximum swe was in 1975 and minimum swe was in 1977; and June maximum swe was in 1975 and minimum swe was in 1992. Average is for the period 1971 through 2000.

Mountain precipitation during December was 121 percent of average and 148 percent of last year. Valley precipitation during December was 187 percent of average. Mountain and valley water year precipitation, beginning October 1, 2008, was 133 percent of average and 160 percent of last year.



Assuming near average precipitation, January through July, the spring and early summer streamflow forecasts average 75 to 89 percent.

Canyon Ferry Lake storage was 99 percent of average and 114 percent of last year; Helena Valley storage was 112 percent of average and 102 percent of last year; Lake Helena storage was 88 percent of average and 101 percent of last year; Hauser & Helena storage was 118 percent of average and 100 percent of last year; Holter Lake storage was 101 percent of average and 100 percent of last year; and Fort Peck Lake storage was 70 percent of average and 118 percent of last year.

Surface Water Supply Index (SWSI) was +0.2 in the Missouri River above Canyon Ferry; -0.3 in the Missouri River below Canyon Ferry; -1.6 in the Dearborn River near Craig; 0.0 in the Missouri River above Fort Peck; and -2.7 in the Missouri River below Fort Peck.

MISSOURI MAINSTEM RIVER BASIN
Streamflow Forecasts - January 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
MISSOURI RIVER at Toston (2)	APR-JUL	1150	1610	1920	94	2230	2690	2050
	APR-SEP	1400	1860	2220	93	2580	3000	2390
DEARBORN nr Craig	APR-JUL	26	52	70	58	88	114	121
	APR-SEP	31	58	77	62	96	123	125
MISSOURI RIVER at Fort Benton (2)	APR-JUL	1860	2440	2840	95	3240	3820	2990
	APR-SEP	2230	2920	3390	95	3860	4550	3570
MISSOURI RIVER at Virgelle (2)	APR-JUL	2220	2890	3350	97	3810	4480	3450
	APR-SEP	2610	3400	3940	97	4480	5270	4060
MISSOURI RIVER nr Landusky (2)	APR-JUL	2220	2940	3430	93	3920	4640	3690
	APR-SEP	2610	3450	4030	93	4610	5450	4350
MISSOURI RIVER below Fort Peck (2)	APR-JUL	2300	3020	3520	94	4020	4740	3740
	APR-SEP	2660	3510	4080	94	4650	5500	4330
LAKE SAKAKAWEA Inflow (2)	APR-JUL	5380	7280	8570	88	9860	11800	9740
	APR-SEP	6190	8390	9870	88	11400	13600	11200

MISSOURI MAINSTEM RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
CANYON FERRY LAKE	2043.0	1655.0	1454.0	1670.3
HELENA VALLEY	9.2	5.4	5.3	4.8
LAKE HELENA	12.7	11.0	10.9	12.5
HAUSER & HELENA	74.6	74.1	73.8	62.9
HOLTER LAKE	81.9	80.6	81.2	80.0
FORT PECK LAKE	18910.0	10520.0	8918.0	15126.0

MISSOURI MAINSTEM RIVER BASIN
Watershed Snowpack Analysis - January 1, 2009

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
HEADWATERS MAINSTEM	8	172	118
SMITH-JUDITH-MUSSELSHELL	10	138	102
SUN-TETON-MARIAS	7	74	59
MAINSTEM ab FT PECK RES	24	119	88
MILK RIVER BASIN	3	600	105
MISSOURI MAINSTEM BASIN	26	133	93

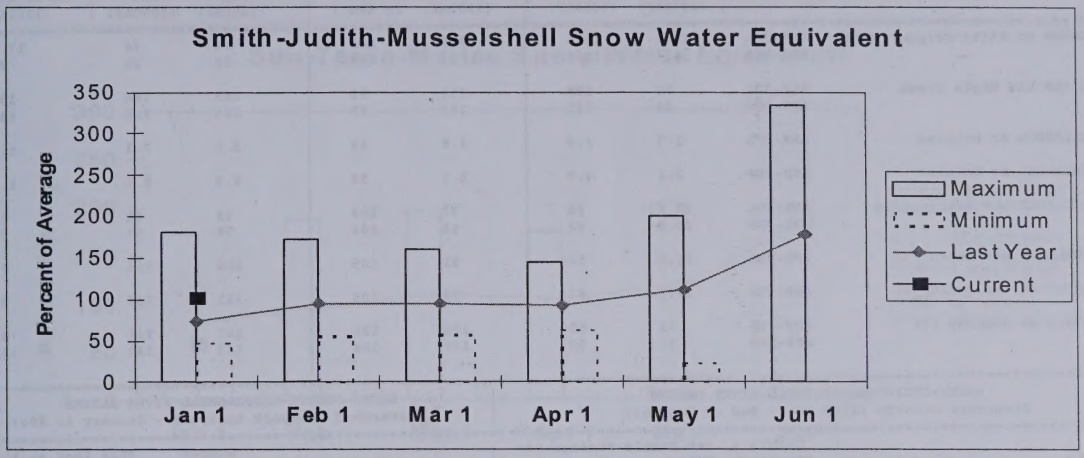
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

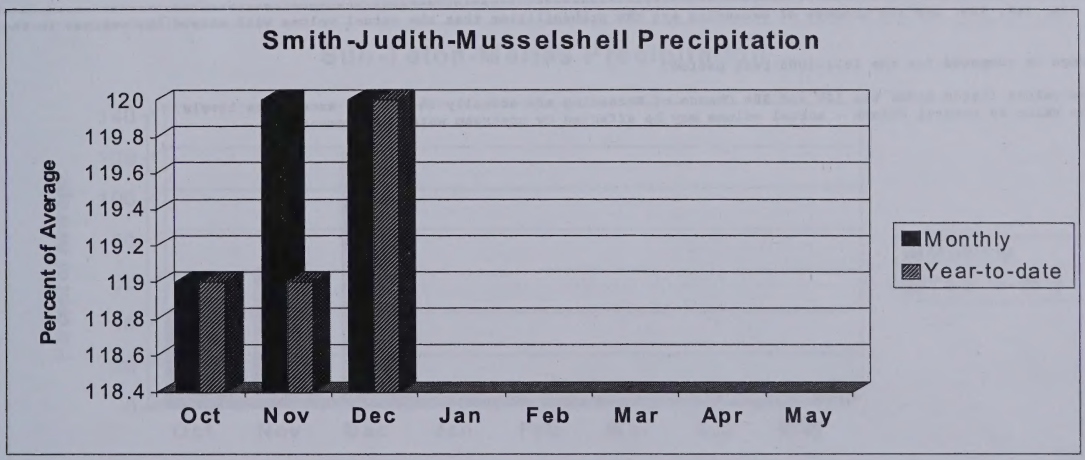
Smith-Judith-Musselshell River Basins

The combined snowpack conditions in the Smith-Judith-Musselshell River Basins were near average. Snow water content in the Smith River Basin was 107 percent of average and 139 percent of last year; in the Judith River Basin was 101 percent of average and 134 percent of last year; and in the Musselshell River Basin was 90 percent of average and 139 percent of last year.



January maximum swe was established in 1997 and minimum swe in 1988; February maximum swe was in 1978 and minimum swe was in 1987; March maximum swe was in 1978 and minimum swe was in 1987 and 2005; April maximum swe was in 1970 and minimum swe was in 1992; and May maximum swe was in 1970 and minimum swe was in 1987; and June maximum swe was in 1967 and minimum swe was in 1987, 1992, 1994, and 2001. Average is for the period 1971 through 2000.

Mountain and valley precipitation during December in the Smith-Belts was 117 percent of average and 149 percent of last year; in the Judith was 109 percent of average and 178 percent of last year; and in the Musselshell was 149 percent of average and 557 percent of last year. Mountain and valley water year precipitation, beginning October 1, 2008, was 120 percent of average and 132 percent of last year.



Assuming near average precipitation, January through July, the spring and early **summer streamflow forecasts average 74 to 103 percent.**

Smith River storage was 114 percent of average and 138 percent of last year; Ackley Lake was 47 percent of average and 83 percent of last year; Bair storage was 60 percent of average and 140 percent of last year; Martinsdale storage was 70 percent of average; and Deadman's Basin was 87 percent of average and 206 percent of average.

Surface Water Supply Index (SWSI) was +0.5 in the Smith River; +1.3 in the Upper Judith River; and +1.2 in the Musselshell River.

SMITH-JUDITH-MUSSELSHELL RIVER BASINS
Streamflow Forecasts - January 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SHEEP CREEK nr White Sulphur Spgs.	APR-JUL	12.2	15.6	17.9	105	20	24	17.1
	APR-SEP	14.4	18.3	21	105	24	28	20
SMITH RIVER blw Eagle Creek	APR-JUL	76	109	131	99	153	186	133
	APR-SEP	84	122	148	99	174	210	149
NF MUSSELSHELL nr Dalpine	APR-JUL	1.7	3.4	4.5	98	5.6	7.3	4.6
NF MUSSELSHELL nr Delpine	APR-SEP	2.1	4.0	5.3	98	6.6	8.5	5.4
SF MUSSELSHELL abv Martinsdale	APR-JUL	17.4	39	54	104	69	91	52
	APR-SEP	19.0	42	58	104	74	97	56
MUSSELSHELL at Harlowton (2)	APR-JUL	18.2	56	81	105	106	144	77
MUSSELSHEEL at Harlowton (2)	APR-SEP	17.1	57	84	104	111	151	81
MUSSELSHELL nr Roundup (2)	APR-JUL	33	50	105	106	160	240	99
	APR-SEP	33	50	106	104	162	245	102

SMITH-JUDITH-MUSSELSHELL RIVER BASINS
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
SMITH RIVER	10.6	6.5	4.7	5.7
ACKLEY LAKE	7.0	1.5	1.8	3.2
BAIR	7.0	2.1	1.5	3.5
MARTINSDALE	23.1	7.1	0.0	10.1
DEADMAN'S BASIN	72.2	38.2	18.5	44.0

SMITH-JUDITH-MUSSELSHELL RIVER BASINS
Watershed Snowpack Analysis - January 1, 2009

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
SMITH	6	139	107
HIGHWOOD	0	0	0
JUDITH	4	134	101
MUSSELSHELL	3	139	90
SMITH-JUDITH-MUSSELSHELL	10	138	102

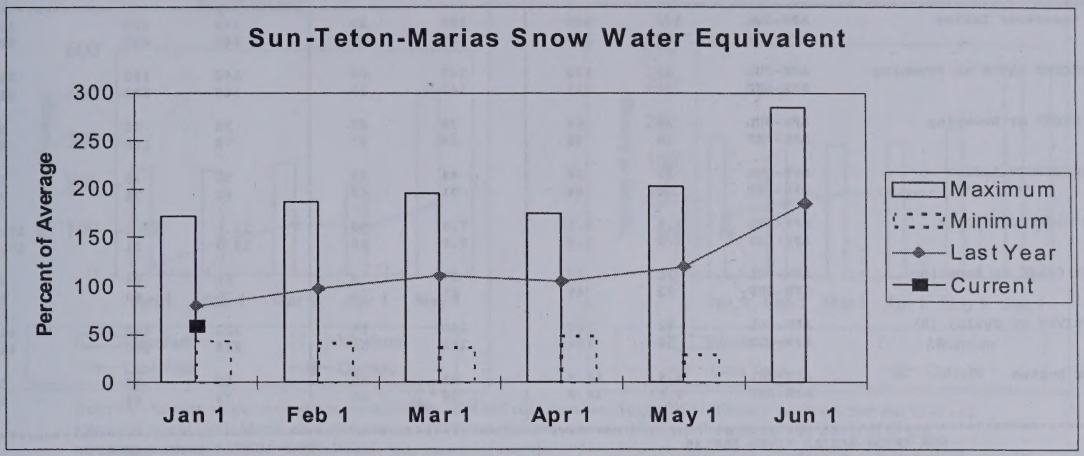
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

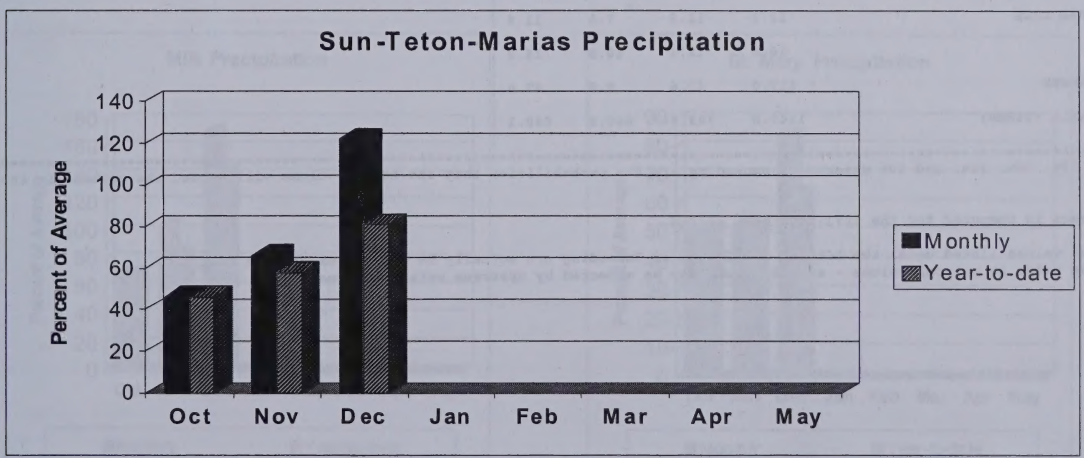
Sun-Teton-Marias River Basins

The combined snowpack conditions for the Sun-Teton-Marias River Basins were well below average tied for fifth lowest of record with 1977 and 2002. Snow water content in the Sun River Basin was 69 percent of average and 83 percent of last year and tied for fifth lowest of record with 2006; in the Teton River Basin was 63 percent of average and 86 percent of last year and tied for sixth lowest of record with 1998; and in the Marias River Basin was 55 percent of average and 68 percent of last year and fifth lowest of record.



January maximum swe was established in 1997 and minimum swe was in 1988; February maximum swe was in 1972 and minimum swe was in 2001; March maximum swe was in 1972 and minimum swe was in 2005; April maximum swe was in 1972 and minimum swe was in 2005; May maximum swe was in 1972 and minimum swe was in 1977; and June maximum was in 1972 and minimum swe was in 1987, 1992, and 1998. Average is for the period 1971 through 2000.

Mountain and valley precipitation during December in the Sun was 116 percent of average and 112 percent of last year; in the Teton was 148 percent of average and 117 percent of last year; and in the Marias was 113 percent of average and 90 percent of last year. Mountain and valley water year precipitation, beginning October 1, 2008, was 81 percent of average and 80 percent of last year.



Assuming near average precipitation, January through July, the spring and early summer streamflow forecasts average 45 to 64 percent.

Gibson storage was 92 percent of average and 227 percent of last year; Pishkun storage was 111 percent of average; Willow Creek storage was 126 percent of average and 124 percent of last year; Lower Two Medicine Lake storage was 28 percent of average and 35 percent of average; Four Horns Lake storage was 106 percent of average and 176 percent of last year; Swift storage was 80 percent of average and 108 percent of last year; Lake Frances storage was 90 percent of average and 618 percent of last year; and Lake Elwell (Tiber) storage was 115 percent of average and 116 percent of last year.

Surface Water Supply Index (SWSI) was -2.3 in the Sun River; +0.2 in the Teton River; -2.2 in the Birch/Dupuyer Creeks; -1.8 in the Marias River above Tiber, and -1.7 in the Marias below Tiber.

SUN-TETON-MARIAS RIVER BASINS
Streamflow Forecasts - January 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
GIBSON Reservoir Inflow	APR-JUL	170	240	290	63	340	410	460
	APR-SEP	205	280	330	65	380	455	505
TWO MEDICINE RIVER nr Browning	APR-JUL	90	120	140	68	160	190	205
	APR-SEP	99	129	149	69	169	199	215
BADGER CREEK nr Browning	APR-JUL	24	44	58	67	72	92	86
	APR-SEP	28	49	64	67	79	100	95
SWIFT RESERVOIR Inflow	APR-JUL	23	36	44	69	52	65	64
	APR-SEP	30	44	53	69	62	76	77
DUPUYER CREEK nr Valier	APR-JUL	1.6	2.1	7.0	50	11.9	19.1	14.0
	APR-SEP	1.9	2.5	7.9	50	13.3	21	15.7
CUT BANK CREEK nr Browning	APR-JUL	30	46	57	74	68	84	77
	APR-SEP	32	49	61	73	73	90	84
MARIAS RIVER nr Shelby (2)	APR-JUL	42	160	240	58	320	440	415
	APR-SEP	30	152	235	53	320	440	440
TETON nr Dutton	APR-JUL	5.4	14.0	33	65	52	80	51
	APR-SEP	5.6	18.0	38	64	58	88	59

SUN-TETON-MARIAS RIVER BASINS
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
GIBSON	99.1	39.0	17.2	42.5
PISHKUN	32.0	19.9	0.0	18.0
WILLOW CREEK	32.2	27.7	22.4	22.0
LOWER TWO MEDICINE LAKE	11.9	2.4	6.9	8.7
FOUR HORNS LAKE	19.2	12.5	7.1	11.8
SWIFT	30.0	11.3	10.5	14.2
LAKE FRANCES	112.0	60.6	9.8	67.0
LAKE ELWELL (TIBER)	1347.0	743.8	640.8	648.1

SUN-TETON-MARIAS RIVER BASINS
Watershed Snowpack Analysis - January 1, 2009

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
SUN	2	83	69
TETON	3	86	63
MARIAS	4	68	55
SUN-TETON-MARIAS	7	74	59

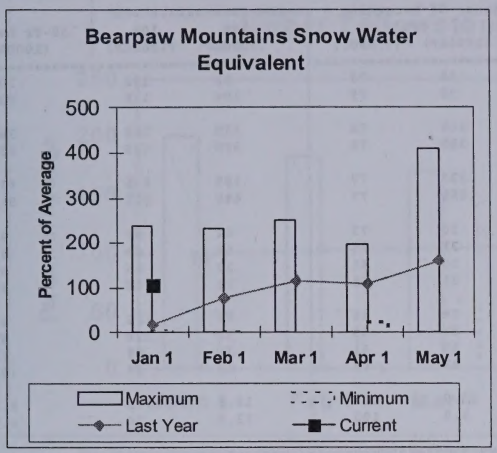
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

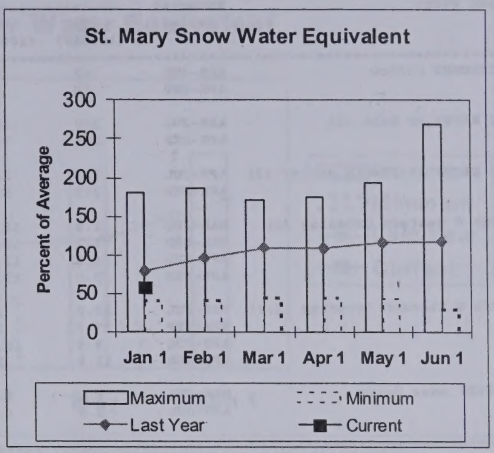
The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

St. Mary and Milk River Basins

The combined snowpack conditions in the St. Mary and Milk River Basins were well below average. Snow water content in the Saint Mary River Basin was 58 percent of average and 73 percent of last year. The Milk River Basin (Bearpaw Mountains) was 105 percent of average and 600 percent of last year.

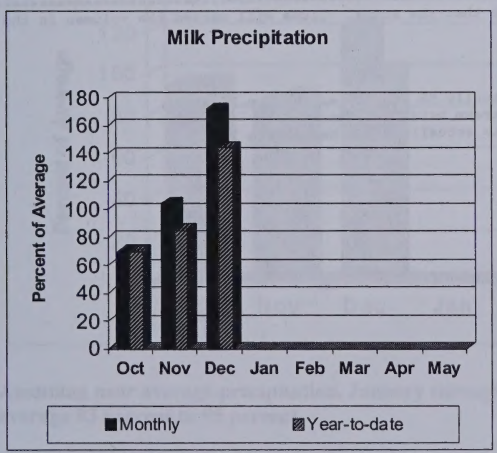


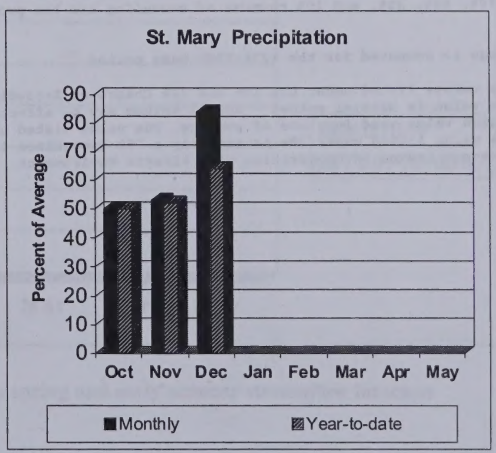


Bearpaw - January maximum swe was established in 1978 and minimum swe was in 1981; February maximum swe was 1978 and minimum was in 1973; March maximum swe was 1978 and minimum swe was 2005; April maximum swe was in 1985 and minimum swe was in 1973, 1983, and 1986; May maximum swe was 1975 and the minimum, 0.0, has occurred in several years. Average is for the period 1971 through 2000.

St. Mary - January maximum swe was established in 1997 and minimum swe was in 1988; February maximum swe was in 1972 and minimum swe was in 2001; March maximum swe was in 1972 and minimum swe was in 2005; April maximum swe was in 1967 and 1972 and minimum swe was in 2005; May maximum swe was in 19972 and minimum swe was in 1977; and June maximum swe was in 1972 and minimum swe was 1992. Average is for the period 1971 through 2000.

Mountain and valley precipitation in the St. Mary River Basin during December was 84 percent of average and 73 percent of last year; and in the Milk River Basin during December was 172 percent of average and 292 percent of last year.





Assuming near average precipitation, January through July, the spring and early summer streamflow forecasts in the St. Mary average 68 to 78 percent. In the Milk the spring and early summer streamflow forecasts average 54 to 84 percent.

Lake Sherburne storage was 183 percent of average and 239 percent of last year; Fresno storage was 104 percent of average and 160 percent of last year; Beaver Creek storage was not available; and Nelson storage was 117 percent of average and 127 percent of last year.

Surface Water Supply Index (SWSI) was -2.3 in the St. Mary River and +0.2 for the Milk River.

ST. MARY and MILK RIVER BASINS
Streamflow Forecasts - January 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
LAKE SHERBURNE Inflow	APR-JUL	62	74	82	78	90	102	105
	APR-SEP	76	88	96	79	104	116	122
ST. MARY RIVER nr Babb (2)	APR-JUL	220	265	300	78	335	380	385
	APR-SEP	265	315	350	78	385	435	450
ST. MARY RIVER at US/CAN Border (2)	APR-JUL	215	285	335	77	385	455	435
	APR-SEP	275	345	395	77	445	515	515
MILK RIVER @ Western Crossing (3)	MAR-JUL	1.0	18.3	30	73	42	59	41
	MAR-SEP	1.2	19.5	32	74	44	63	43
	APR-JUL	4.8	12.6	20	61	29	46	33
	APR-SEP	5.0	13.2	21	58	31	48	36
MILK RIVER @ Eastern Crossing (2,3)	MAR-JUL	15.0	26	54	65	82	122	83
	MAR-SEP	17.7	28	57	65	86	128	88
	APR-JUL	8.5	15.8	37	61	58	89	61
	APR-SEP	12.9	21	43	62	65	97	69
BEAVER CREEK near Havre	MAR-JUL	4.3	8.2	10.9	114	13.6	17.5	9.6
	APR-JUL	3.3	6.0	9.0	103	13.5	24	8.7

ST. MARY and MILK RIVER BASINS
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
LAKE SHERBURNE	64.3	43.0	18.0	23.5
FRESNO	127.0	53.8	33.7	51.8
BEAVER CREEK		NO REPORT		
NELSON	66.8	41.6	32.8	35.7

ST. MARY and MILK RIVER BASINS
Watershed Snowpack Analysis - January 1, 2009

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
ST. MARY	2	73	58
BEARPAW MOUNTAINS	3	600	105
CYPRESS HILLS, CANADA	0	0	0
MILK RIVER BASIN	3	600	105
ST. MARY & MILK BASINS	5	102	68

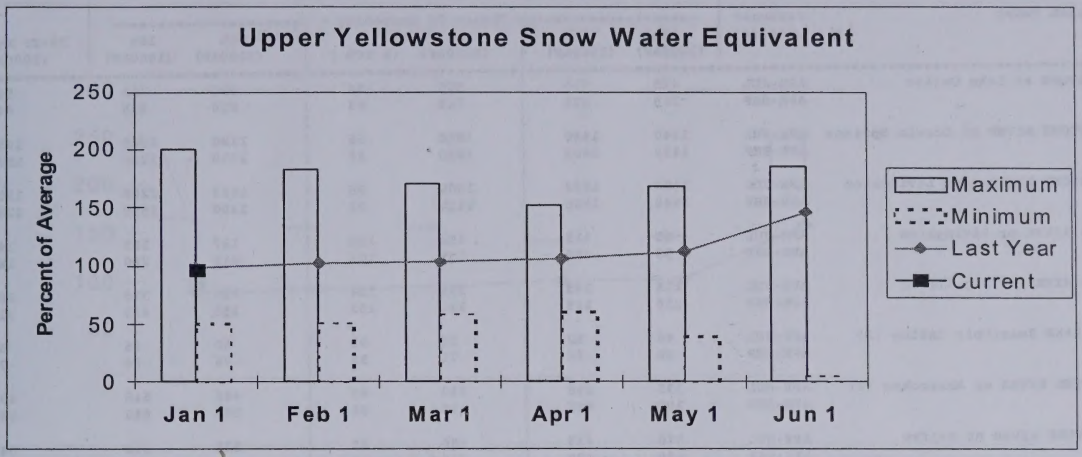
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average. The value listed under 30% is actually a 25% exceedance level.
The value listed under 70% is actually a 75% exceedance level.
Forecast issued in cooperation with Alberta Environment.

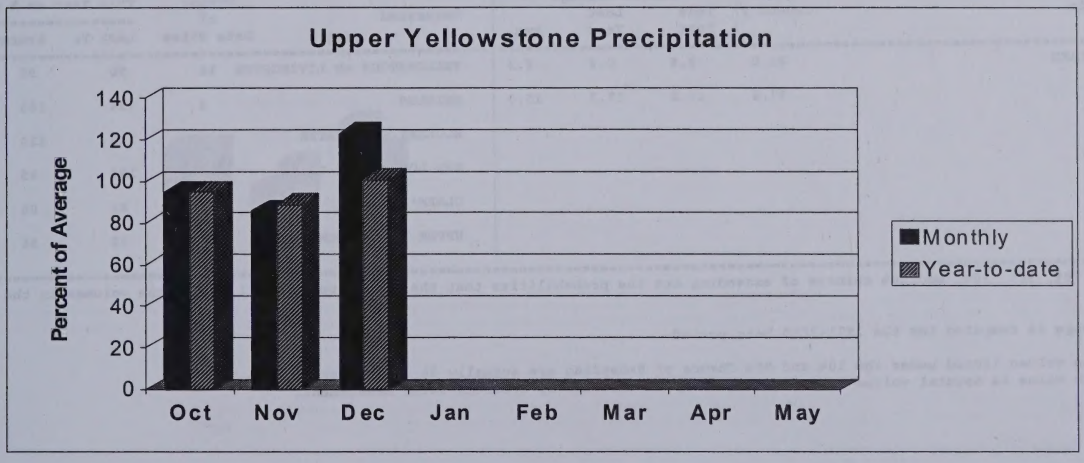
Upper Yellowstone River Basin

Snowpack conditions in the Upper Yellowstone River Basin were near average. Snow water content was 96 percent of average and 98 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1988; February maximum swe was in 1997 and minimum swe was in 2001; March maximum swe was in 1997 and minimum swe was in 2001; April maximum swe was in 1997 and minimum swe was in 2001; May maximum swe was in 1997 and minimum swe was in 1987; and June maximum swe was 1996 and minimum swe was in 2001. Average is for the period 1971 through 2000.

Mountain precipitation during December was 124 percent of average and 116 percent of last year. Valley precipitation during December was 117 percent of average and 292 percent of last year. Mountain and valley water year precipitation, beginning October 1, 2008, was 101 percent of average and 87 percent of last year.



Assuming near average precipitation, January through July, the spring and early summer streamflow forecasts average 83 percent to 95 percent.

Mystic Lake storage was 92 percent of average and 96 percent of last year and Cooney storage was 115 percent of average and 100 percent of last year.

Surface Water Supply Index (SWSI) was +0.4 in the Yellowstone River above Livingston; +1.9 in the Shields River; +0.6 in the Boulder River; -0.5 in the Stillwater River; 0.0 in the Rock/Red lodge Creeks; -0.9 in the Clarks Fork River; and +0.1 in the Yellowstone River above Bighorn River.

LOWER YELLOWSTONE RIVER BASIN
Streamflow Forecasts - January 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
BIGHORN RIVER nr St. Xavier (2)	APR-JUL	885	1230	1460	91	1690	2030	1610
	APR-SEP	920	1310	1570	89	1830	2220	1760
LITTLE BIGHORN RIVER nr Hardin	APR-JUL	64	95	116	91	137	168	128
	APR-SEP	79	113	136	94	159	193	144
TONGUE RIVER nr Dayton (2)	APR-JUL	65	85	99	103	113	133	96
	APR-SEP	76	98	113	104	128	150	109
BIG GOOSE CREEK nr Sheridan	APR-JUL	35	47	55	106	63	75	52
	APR-SEP	43	56	64	107	72	85	60
LITTLE GOOSE CREEK nr Big Horn	APR-JUL	23	31	36	106	41	49	34
	APR-SEP	31	39	45	107	51	59	42
TONGUE RIVER RESERVOIR Inflow (2)	APR-JUL	123	190	235	107	280	345	220
	APR-SEP	142	210	260	104	310	380	250
YELLOWSTONE RIVER at Miles City (2)	APR-JUL	3440	4230	4770	89	5310	6100	5360
	APR-SEP	3910	4920	5530	89	6140	7150	6210
POWDER RIVER at Moorehead	APR-JUL	89	158	205	100	250	320	205
	APR-SEP	110	181	230	100	280	350	230
POWDER RIVER nr Locate	APR-JUL	94	178	235	100	290	375	235
	APR-SEP	108	199	260	100	320	410	260
YELLOWSTONE RIVER nr Sidney (2)	APR-JUL	3430	4290	4880	89	5470	6330	5480
	APR-SEP	3960	4900	5600	89	6300	7250	6280

LOWER YELLOWSTONE RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
BIGHORN LAKE	1356.0	975.4	915.0	911.1
TONGUE RIVER	79.1	48.9	51.0	22.5

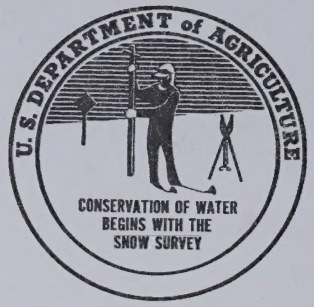
LOWER YELLOWSTONE RIVER BASIN
Watershed Snowpack Analysis - January 1, 2009

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
WIND RIVER (Wyoming)	12	108	95
SHOSHONE RIVER (Wyoming)	6	93	84
BIGHORN RIVER (Wyoming)	16	104	96
LITTLE BIGHORN (Wyoming)	2	138	107
TONGUE RIVER (Wyoming)	7	124	113
POWDER RIVER (Wyoming)	6	102	106
LOWER YELLOWSTONE BASIN (	31	109	97

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.



Federal Building, Room 443
10 E. Babcock
Bozeman, MT 59715

Montana
Water Supply Outlook
Report

Natural Resources Conservation Service
Bozeman, MT